

TRUSCON

MANUFACTURERS OF A COMPLETE
LINE OF STEEL BUILDING PRODUCTS



TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

THE COMPANY AND ITS PRODUCTS

THE TRUSCON STEEL COMPANY, of Youngstown, Ohio, is an institution of national scope—the largest company of its kind in the world, manufacturing a complete line of steel building products.

They have been developed in accord with modern architectural requirements for utility and quality, and include individual units peculiarly suited to all types of building and every structural condition.

Due to unusually efficient manufacturing facilities, the profession is assured of dependable workmanship. This, in turn, is supplemented by a nation-wide engineering organization equipped to render direct personal service in the designing room or the field. Our location of offices and warehouses guarantees speedy attention to inquiries.

The TRUSCON STEEL COMPANY of 1933 represents "*Thirty Years of Pioneering and Leadership*" and the following noteworthy line of nationally known building and maintenance products:

Windows, of Steel, Aluminum and Bronze; Steel Doors and Frames; Reinforcing Steel; Steel Joists, Clerespan Trusses; Welded Steel Fabric; Metal Lath and Insulmesh for Plaster Bases; Ferroclad Insulation Panels; Steeldeck and Ferrocoustic Roofs; Structural Steel; Teegrid Bridge Floors; Gratings; Safety Tread Steel; Rolled and Formed Sections; Power Transmission Structures; Steel Poles and Towers; Steel Buildings; Pressed Steel Specialties; "Silentaire," a non-mechanical Window Muffler; and Industrial Maintenance Products.

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ARCHITECTURAL SERVICE

TRUSCON'S designers and engineers work in close relationship with architects, builders and contractors so that there will be a better understanding of all requirements. Architects are invited to call on our Service Department for preliminary estimates, for investigations, studied reports, complete suggestions and definite quotations.



WINDOW AND DOOR SERVICE

Truscon Window and Door Service knows no bias in its recommendations, for Truscon can furnish any type or kind of window or door. And with Truscon's intimate knowledge of latest de-

velopments, relative costs, advantages and limitations of standardization and quantity production, it can work efficiently towards its objective—the best interests of the architect and the owner.

ERECTION AND ADJUSTING

The satisfactory operation of a window or door installation is in a large degree dependent upon the manner in which it is installed and adjusted. Realizing this fact, the TRUSCON STEEL COMPANY has built up a national organization of experts familiar with our windows and doors in every detail and ready to take the full responsibility of erecting and adjusting our windows and doors to the satisfaction of the architect, the general contractor and the owner.

Most architects and contractors realize the value of Truscon Erection and specify and award all

contracts erected and adjusted. This window and door service means that the TRUSCON STEEL COMPANY and its field organizations take full responsibility for the installation from the start of manufacture up to and including its incorporation in the finished structure.

We look after shipment; unloading at destination; cartage and storage at the job; hoisting and distributing on the various floors; setting, plumbing and fastening in the opening; applying of hardware and the final inspection and adjusting of windows and doors after painting.

SCOPE OF TRUSCON WINDOWS AND DOORS

TRUSCON windows and doors cover a wide range of building requirements and at the same time meet every condition of beauty, architectural harmony, simplicity, fine quality and superior craftsmanship demanded by the industry. Truscon offers the following types:

WINDOWS

Double-Hung Windows—(steel, aluminum or bronze). In types and sizes to meet architectural requirements.

Awning Type Windows—Prevent sun glare and drafts; ideal for schools and hospitals.

Casements—A complete line for monumental and public buildings, institutions, apartments and dwellings, including screens and operators for screens and artistic hardware.

Monumental Projected Windows—For quality installations in good buildings.

Detention Windows—For prisons, reformatories and psychopathic hospitals.

Architectural and Commercial Projected Windows—A practical window for a wide range of applications.

Continuous Windows and Operators.

Pivoted, Utility and Basement Windows.

DOORS

Industrial Doors—For large and small openings.

Overdoors—Operating overhead.

Accordion Doors—Leaves fold against each other like a jack-knife.

Vertical Lift Doors.

Canopy Doors and Bifold Doors.

Airplane Hangar Doors—In various styles, straight track types, curved track types, canopy, telescoping and projected types.

Pier Doors—A vertical lift-swing type.

DOUBLE-HUNG WINDOWS

MODEL No. 28
Counterweighted

THIS Double-Hung Window is considered one of the best windows in its class. Installation in fine buildings all over the country testify to its practicability, good design and enduring qualities. (Refer to page 9.)

The narrow members add to the attractiveness of any building and increase the daylighting of interiors. Electro-galvanizing of all parts prevents corrosion. Spring bronze weather stripping shuts out draughts and makes operation easy. Frames are made in one unit and are solidly welded at corners, insuring weather tightness, and perfect alignment.

Standard mullions are formed of two or more window units connected with structural T's as shown in the details on the following page.

Weightless mullions may be used in combinations of not more than two units and in this construction, by ingenious arrangement of sash, chain and pulleys, only one weight is used for each sash located in a jamb weight well. This eliminates the weights in the mullion, reduces their width and effects a pleasing appearance.

CONDENSED SPECIFICATIONS

(1) **General**—All window openings shown on drawings, unless otherwise specified, shall be equipped with solid steel, plate type (galvanized and weatherstripped) Model "28" Double-Hung Windows, as manufactured by the TRUSCON STEEL COMPANY, of Youngstown, Ohio.

(2) **Material**—All windows throughout shall be constructed of TRUSCON special hot-rolled new billet steel, galvanized. Sills shall be of 12-gauge; weight boxes, jambs, pulley stiles, heads and head covers, 16-gauge; rails and stiles of sash, 12-gauge; inside glazing strips at jambs, 14-gauge, and at top and bottom rails, 12-gauge.

(3) **Scope of Work**—The steel window manufacturer shall include in his work all steel Double-Hung Windows erected complete, and shall furnish and apply hardware and weights and make a final adjustment of windows shown on drawings and covered in specifications.

(4) **Construction**—(a) *Frame Members*: head, sill and jamb construction, each one piece of metal exclusive of parting stop, weight box cover and head cover; all members formed straight and true with welded joints ground smooth; staff bead formed on exterior of frame.

(b) *Pulley Stiles* shall be formed with deep weathering and the pulley stile and weight box cover held in place with one line of oval head screws passing through a heavy reinforcing piece on inside of jamb. Adjustment of sash and frame shall be secured by these screws which hold the pulley stile and weight box cover. The weight box cover shall run the full height of the jamb from sill to head, and shall be removable.

(c) A *brass check plate* shall be attached at meeting rails to insure proper weathering.

(d) A *window stop* shall be provided to prevent air entering room from slot under upper sash.

(e) *Sash Members* shall be so designed that the distance from masonry opening to glass line at jambs and head will be 2½ in.

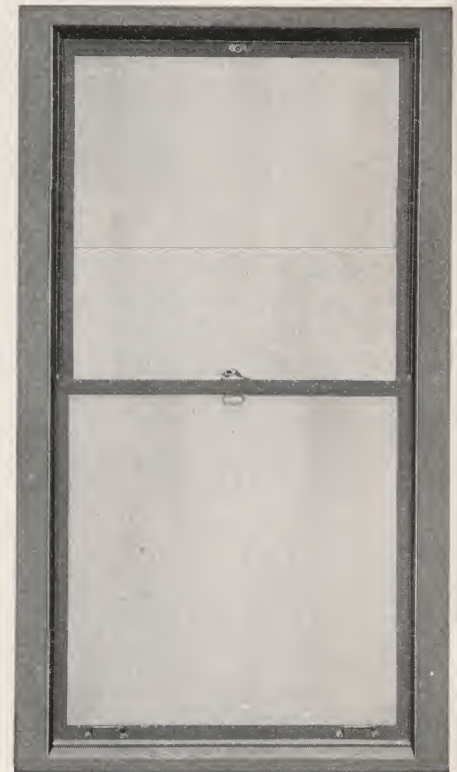
(f) *Glazing Strips* secured with oval head screws permit inside glazing.

(5) **Weather Stripping**—Weather stripping shall be provided of spring bronze and applied to sash members at sill, jambs, meeting rails and head. A spring bronze closure shall be applied to lower half of outer sashway.

(6) **Hardware**—(a) *Frames* shall be equipped with pressed steel pulleys and pressed steel housings with hard steel pins in a brass bushing. Sash shall be hung on No. 130 galvanized steel sash chains concealed behind pulley stiles and properly balanced with cast iron weights.

(b) *Sash* shall be equipped with one pair of lift handles, one combination adjustable sweep lock, one pull-down handle for upper sash, and one pole socket, all of cadmium plated malleable iron.

(7) **Painting**—All windows shall be given one coat of protective paint after assembly and before shipment.



CONSTRUCTION DETAILS

(1) **Section Through Head of Frame**—Showing one-piece channel construction with recess to receive upper sash rail; staff mould formed from two thicknesses of metal and head cover welded to frame section.

(2) **Muntin Bars**—Furnished horizontally and vertically. They are interlocked and welded at all intersections.

(3) **Section Through Jamb**—Illustrating the dual function of the jamb frame as weight box and sash guide. A removable weight-pocket-cover-plate extending from sill to head makes the weights easily accessible, and a light metal parting strip between the weights prevents them from becoming twisted or locked together. Proper weathering is secured through spring bronze weather stripping attached to the sash stiles.

(4) **Concealed Grout Holes**—At each end of the sill, and back of the removable cover plate, make it easy to fill the opening under the sill with grout, thus assuring a firm and weather-tight bed for the window.

(5) **T-Shaped Mullions**—Are used for joining two or more windows in a single opening, and are held in place by means of concealed steel straps which eliminate all unsightly projections.

(6) **Pair of Lifting Handles**—Are tap-screwed through two thicknesses of metal to the bottom rail of the lower sash.

(7) **Section Through Bottom of Window**—Showing double contact weathering between sash and sill. The sill section of frame is formed from a single piece of steel, sloped to the outside to insure good drainage.

(8) **Section Through Meeting Rail**—Showing interlocking contact between the upper and lower sash, and the spring bronze weather stripping on upper rail of lower sash. Brass weathering plates are attached to the parting strip at the meeting rail to assure additional weather protection. The bottom rail of upper sash is shaped to act as a drip.

(9) **Cutaway View of Jamb Frame**—Showing the bronze-bushed pressed steel chain pulleys that turn on hardened steel pins in heavy, pressed steel housings.

Peerless DOUBLE-HUNG WINDOWS

SERIES 33
Counterweighted

THE Peerless Double-Hung Steel Window, Series 33, combines a pleasing architectural design with maximum utility, durability, simplicity and economy. The tubular construction of the sash, frame members and combination jamb and weight well develops remarkable strength in the sections and at the same time imparts a proportion to them that makes the window thoroughly in harmony with requirements for monumental buildings. Muntins may be supplied, if desired, either for architectural treatment or when Underwriters' label of approval is required.

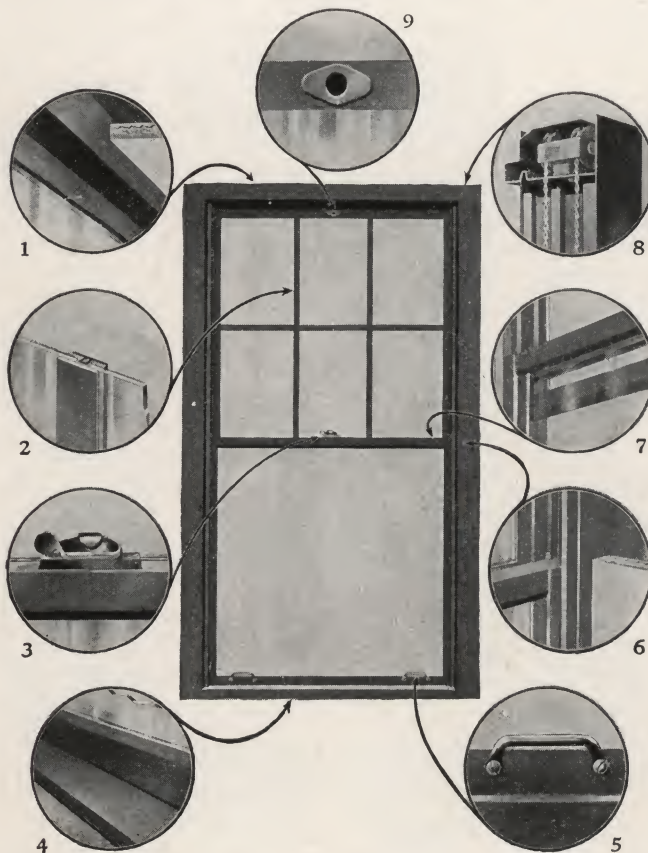
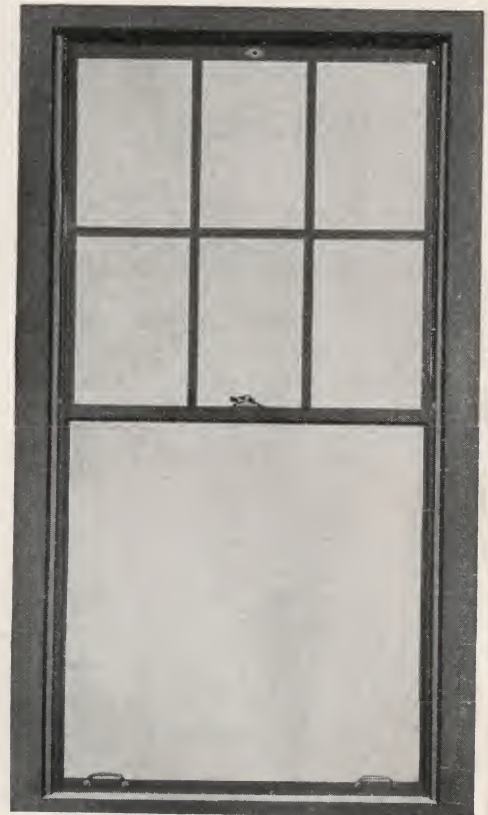
Positive weathering is provided by flexible spring bronze strips at jambs, head and meeting rail. So accurately and effectively is the Peerless Window constructed that the air infiltration is reduced to a negligible quantity. In every respect, the Peerless Double-Hung Window is as fine as ingenious design, quality materials and skilled workmanship can make it. Hardware is thoroughly in keeping with the high standards of the window.

CONSTRUCTION DETAILS

- (1) Head—Sturdy tubular construction.
- (2) Muntin Bars—Of specially designed sections can be furnished if desired.
- (3) Sweep Lock—Malleable iron, cadmium plated.
- (4) Sill—Made in one piece of steel, sloped to the outside to insure good drainage.
- (5) Lift Handles—Malleable iron, cadmium plated.
- (6) Jamb—Made integral with the weight well; tubular construction imparts great strength.
- (7) Meeting Rail—Meeting rail sections are of tubular design formed to interlock; weatherstripping assures minimum air infiltration.
- (8) Counterweights—Hung on galvanized chains running over iron pulleys having hard maple bearings, pressure-saturated with paraffin.
- (9) Pole Socket—Cadmium plated, the tubular rail permits it to be recessed.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown, provided glass lights do not exceed 505 square inches.



FEATURES OF CONSTRUCTION

Tubular Sash Sections—Not only is the appearance of the window greatly improved by the tubular sections of the sash, but remarkable strength is obtained because of their shape. The top rail of the top sash and the bottom rail of the bottom sash are formed of one piece, having a $1\frac{1}{8}$ in. depth from front to back and $2\frac{1}{8}$ in. height. Both meeting rails are $1\frac{3}{4}$ in. from front to back by $1\frac{3}{8}$ in. high.

Jamb Stops—Removable for easy access to weight box.

Deep, Rigid Sill—Sill is made in one piece, having adequate depth and stiffness to prevent bowing, bending or leakage. All surfaces are flat, with no grooves.

Integral Jamb and Weight Well—The jamb and weight well are made in one piece, tubular in shape, thus eliminating many seams and joints and developing greater strength. The parting and inside stop strips also are formed in one integral piece.

Welded Corners and Frames—No solder, no rivets, no slot-and-tenon construction is used in this window. All corners are coped and lapped to their full depth, then securely welded.

Completely Weatherstripped—Spring bronze weatherstrips are attached to sash at head, meeting rails, jambs and sill. This insures positive weather-tightness, eliminates rattle and lowers air infiltration.

Minimum Air Infiltration—The windows are so carefully made that air infiltration has been reduced to not more than one-half cubic per foot perimeter of sash when subjected to a 25 mile per hour wind velocity.

Quality Hardware—Standard hardware consists of malleable iron lift handles, pole socket and meeting rail lock. Bronze hardware at slight extra cost. Sash chains ride on grey iron pulleys that have hard white maple bearings, running on $\frac{5}{16}$ -in. axles.

Simplified Glazing—In glazing the vents of the window, it is not necessary to remove the sash from the frame.

TRUSCON

CONDENSED SPECIFICATIONS

(1) **General**—All window openings shown on the drawings, unless otherwise specified, shall be equipped with Peerless Double-Hung Steel Windows, Series 33 (Galvanized and Weatherstripped), as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Scope of Work**—The steel window manufacturer shall include in his work all Double-Hung Steel Windows, erected complete, and shall furnish and apply hardware and weights and make a final adjustment of windows shown on drawings and covered in Specifications.

(3) **Material**—All windows throughout shall be constructed of Truscon Special hot-rolled, new billet steel, copper-bearing and galvanized; Sills shall be of 14-gauge; Jamb Frame (Weight Boxes) and Jamb Stops of 18-gauge; Rails and Stiles of Sash 18-gauge; Inside Glazing Strips of 13-gauge; Sash Stiles, Head Cover Plate, 24-gauge; Head Frame, 16-gauge.

(4) **Construction**—(a) *Frame Members*: The head frame shall be made up of two parts—the frame proper and the cover. The jamb frame and the weight box shall be made of one piece and shall have attached to it the jamb stop which shall also serve as an access panel to the weights. All members formed straight and true with welded joints.

(b) The *Jamb Stop* shall be removable to afford an exceptionally large opening for access to weights.

(c) *Sash Members*: Sash members shall be not less than 1½ in. deep, front to back, and shall be so designed that the distance from masonry opening to glass lines at head will be 2⅝ in. and at jambs 2⅛ in. Corners of sash shall be welded.

(d) The *Meeting Rail* between upper and lower sash shall be formed so as to interlock.

(e) Where *Muntin Bars* are required, they shall butt against sash members and be so welded that wherever possible a flush surface is secured at intersections. A smooth outside and inside surface shall be maintained on all muntin bars. No grooves shall remain exposed.

(f) Convenient *Inside Glazing* shall be assured by the use of removable inside glazing strips at sides only. These glazing strips shall be secured with oval-head screws, one screw only at the center of each stile.

(5) **Weatherstripping**—Weatherstripping shall be provided of spring bronze and applied at sill, jambs, meeting rail and head.

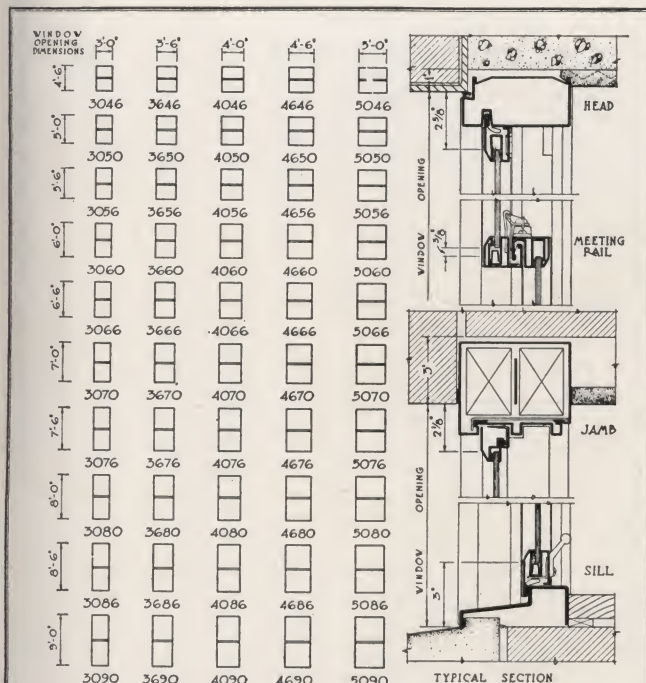
(6) **Hardware Equipment**—(a) Frames shall be equipped with grey iron pulleys having hard white maple bearings saturated in paraffin under steam pressure and running on ⅝-in. round, cold-rolled axles mounted in pressed steel housings. Sash shall be hung on No. 130 Galvanized Steel Sash Chains exposed and properly balanced with cast iron weights.

(b) Sash shall be equipped with one pair of malleable iron lift handles, sweep lock and steel strike, and one steel pole socket—all cadmium-plated.

Note: Special steel or lead weights shall be supplied where cast iron weights are not sufficient to balance sash properly. Hardware is furnished in bronze where so specified, at an additional cost.

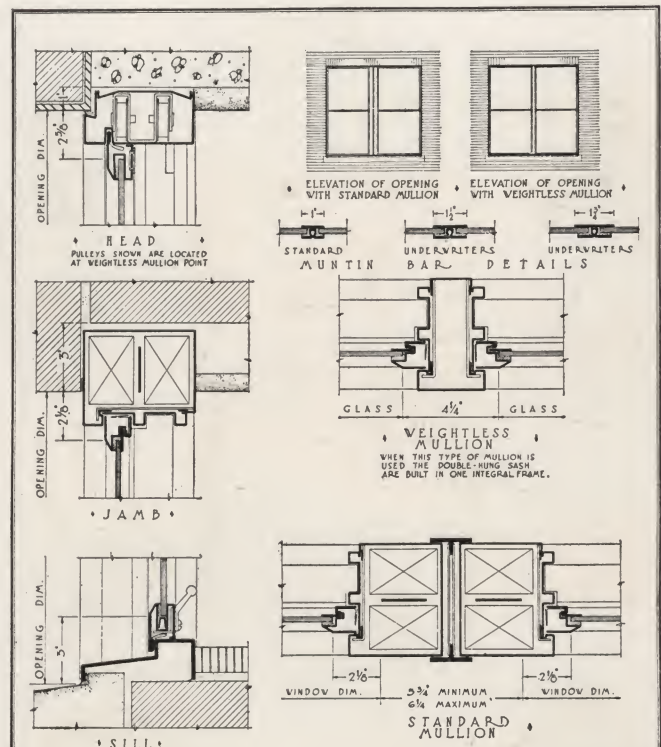
(7) **Painting**—All windows shall be given one coat of Truscon Protective paint after assembly and before shipment.

[CONSTRUCTION DETAILS ON OPPOSITE PAGE]



NOTE: WIDTH OF GLASS (IN SINGLE LIGHT SIZE) PLUS 4½" GIVES MASONRY OPENING, ALSO WINDOW WIDTH. HEIGHT OF GLASS (SUM OF UPPER AND LOWER SASH, SINGLE LIGHT) PLUS 6" GIVES MASONRY OPENING HEIGHT, ALSO WINDOW HEIGHT. VERTICAL AND HORIZONTAL MUNTIN BARS CAN BE USED BUT THE OVERALL DIMENSION MUST BE MAINTAINED (½" DEDUCTED FROM GLASS SIZE FOR EACH MUNTIN BAR ADDED. SEE PLATE WW-8 FOR MUNTIN BAR DETAIL.

TRUSCON STEEL COMPANY Youngstown, Ohio
 TYPES AND SIZES
 Peerless DOUBLE-HUNG STEEL WINDOW
 SERIES 33
 PLATE No. WW-7
 OCTOBER, 1932



TRUSCON STEEL COMPANY Youngstown, Ohio
 MULLION DETAILS
 Peerless DOUBLE-HUNG STEEL WINDOW
 SERIES 33
 PLATE No. WW-8
 OCTOBER, 1932

DOUBLE-HUNG WINDOWS

SPRING BALANCE TYPE

SERIES 60HD is used quite extensively in Governmental work, especially in many new Veterans' Hospitals, where sturdy and rigid construction combined with detention features are essential.

Series 50L lends itself to residence and other types of construction where detention features and excessive weight are not required.

CONDENSED SPECIFICATIONS—SERIES 50L

(1) **General**—All windows shown on drawings, or called for in specifications, shall be Spring Balanced Double-Hung Windows, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be permitted without the written approval of the architect or engineer.

(2) **Material**—Frames and Sash: Shall be constructed of hot-rolled new billet steel; sub-frames, if required, shall be of 14 gauge; exterior moulding, if required, of 18 gauge.

(3) **Construction**—(a) *Frame Members*—Head and jamb members shall be of a special rolled section, depth of section to be not less than $3\frac{3}{4}$ in., including cove moulding, which is an integral part of the frame section. Intersection of sections to be welded and ground smooth where necessary. When required, an exterior sub-frame and moulding may be applied to frame section. (See detail.)

(b) *Sash*—Shall be constructed of channel sections not less than $1\frac{3}{8}$ in. deep, the corners to be mortised and tenoned and air-hammer riveted.

(c) *Muntins*—Where required, shall be hot-rolled "Tee" sections. At intersections, there shall be a mechanical joint rigidly interlocking the muntins flush with each other. Joints of muntins and frames, stiles and rails shall be tenoned, mortised and air-hammer riveted.

(4) **Weathering**—A specially designed combination weathering and parting strip of extruded bronze shall be provided at the jambs. (See detail.) There shall be a weathering block provided at the meeting rail. Meeting rail intersection shall have a special rubber tubing encased in a bronze housing to provide weathering.

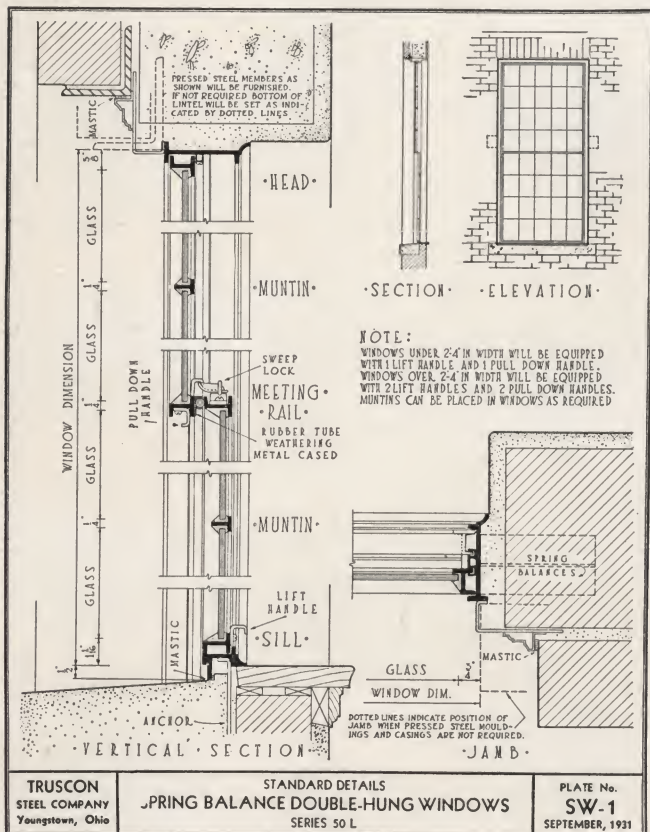
(5) **Hardware**—(a) All units shall be equipped with one pair of steel lift handles, one pair of pull down steel handles and one malleable iron sweep lock with steel strike.

Note: All windows under 2 ft. 4 in. in width will be equipped with one lift handle and one pull-down handle.

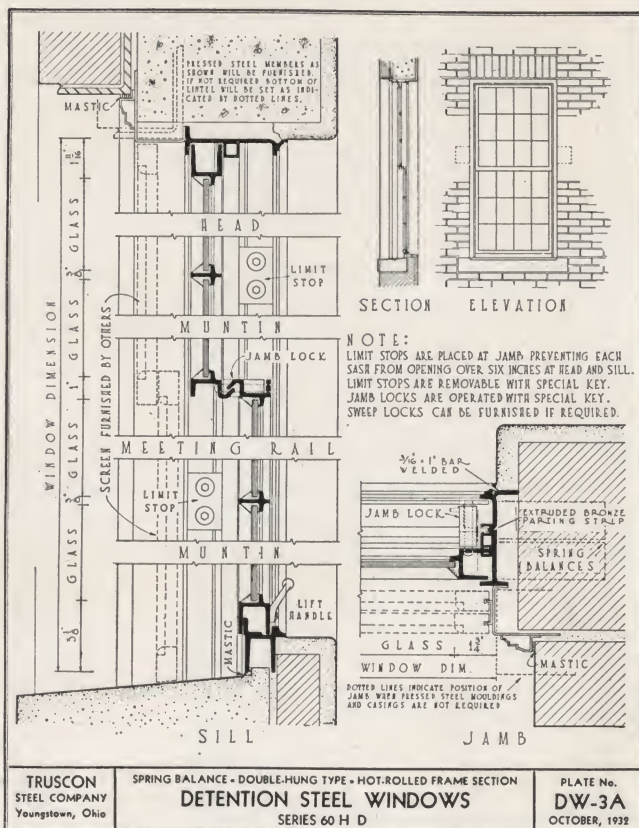
(b) Each sash shall be suspended on two enclosed spring balances as furnished by TRUSCON STEEL COMPANY. Spring balances shall be enclosed in a metal housing and securely attached to frame. Metal tapes shall be properly attached to sash and shall hang vertically and run freely at all times.

(6) **Anchors**—Units shall be equipped with strap anchors at jamb for attaching to building construction.

(7) **Painting**—All windows shall be given one coat of protective paint, before shipment.



SERIES 50L and 60HD



CONDENSED SPECIFICATIONS—SERIES 60HD

(1) **General**—All windows shown on drawings, or called for in specifications, shall be Heavy Detention Spring Balanced Double-Hung Windows, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be permitted without the written approval of the architect or engineer.

(2) **Material**—Frames and Sash: Shall be constructed of hot-rolled new billet steel; sub-frames, if required, shall be of 14-gauge material; exterior moulding, if required, of 18 gauge.

(3) **Construction**—(a) *Frame Members*—Head and jamb members shall be of a special rolled section, depth of section to be not less than $4\frac{1}{2}$ in., including cove moulding, which is an integral part of the frame section. Intersection of sections to be welded and ground smooth where necessary. When required, an exterior sub-frame and moulding may be applied to frame section. (See detail.)

(b) *Sash*—Shall be constructed of channel sections not less than $1\frac{7}{8}$ in. deep, the corners to be welded.

(c) *Muntins*—Where required, shall be hot-rolled sections. At intersections, there shall be a mechanical joint rigidly interlocking the muntins flush with each other. Joints of muntins and frames, stiles and rails shall be tenoned, mortised and air-hammer riveted.

(4) **Weathering**—A specially designed combination weathering and parting strip of extruded bronze shall be provided at the jambs. (See detail.) There shall be a weathering block provided at the meeting rail.

(5) **Hardware**—(a) All units shall be equipped with one pair of malleable lift handles, pole socket at head and sweep lock at meeting rail. Special jamb detention locking device, key operated, can be furnished in place of sweep lock at option of customer.

(b) Each sash shall be suspended on two enclosed spring balances as furnished by TRUSCON STEEL COMPANY. Spring balances shall be enclosed in a metal housing and securely attached to frame. Metal tapes shall be properly attached to sash and shall hang vertically and run freely at all times.

(c) Limit stops shall be provided to prevent upper or lower sash from opening more than 6 in. and shall be removable only by a special key. Upon removal, top or bottom sash can slide full height of opening.

(6) **Anchors**—Units shall be equipped with strap anchors at jamb for attaching to building construction.

(7) **Painting**—All windows shall be given one coat of protective paint, before shipment.

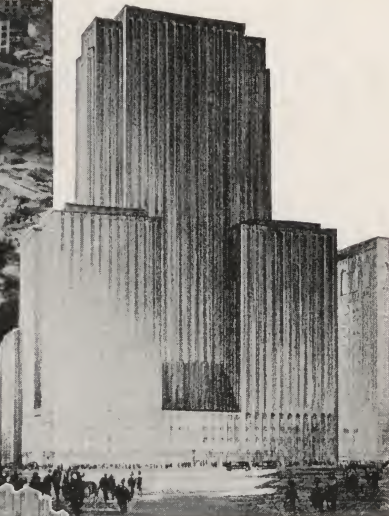
Note: Screen guides can be furnished and applied to exterior sub-frame of both Series 50L and 60HD windows to permit application of vertical sliding screen. (See detail.)

TRUSCON

DOUBLE-HUNG WINDOW INSTALLATIONS



Department of Commerce Bldg., Washington, D. C.
YORK & SAWYER, Architects



Marshall Field Building, Chicago, Illinois
GRAHAM, ANDERSON, PROBST & WHITE, Architects



Union Terminal Buildings, Cleveland, Ohio
GRAHAM, ANDERSON, PROBST & WHITE, Architects



Louisiana State University Medical Center Bldg., New Orleans, La.

WEISS, DREYFOUS & SEIFERTH, INC., Architects



Detroit Times Bldg., Detroit, Mich.
ALBERT KAHN, INC., Architects

ALBERT KAHN, INC., Architects

251 W. 30th Street Bldg., New York City, N. Y.
GEORGE AND EDWARD BLUM Architects



National Newark & Essex Bank Bldg., Newark, N. J.
JOHN H. & WILSON C. ELY, Architects



Warner Brothers Building Nashville, Tenn.
MARR & HOLMAN, Architects

Shell Oil Building San Francisco, Calif.
GEORGE W. KELHAM, Architect



Los Angeles County General Hospital, Los Angeles, Calif.
ALLIED ARCHITECTS ASSOC. OF LOS ANGELES, Architects

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

DONOVAN AWNING TYPE WINDOWS

MODEL No. 29

DAYLIGHT illumination without sun glare, and natural ventilation without draughts are provided for schools, hospitals, offices, hotels, apartments and public buildings by Donovan Awning Type Windows. They are made of high quality copper bearing steel and are superior in design, construction, workmanship and operation. Their moderate cost makes them practical for any building.

Simple, substantial and pleasing in appearance, the Donovan Window details have been carefully worked out to make possible the practical application of the latest and best principles of perfect ventilation and correct lighting.

Two or three superposed vents, supported in a sturdy frame, open outward in unison to provide all the benefits and weather protection of an awning, and accomplish the proper deflection of air currents upward and toward the far side of the room. Movement of the lower sash operates the upper, but by merely moving a clutch, the lower sash may be opened or closed independently of those above.

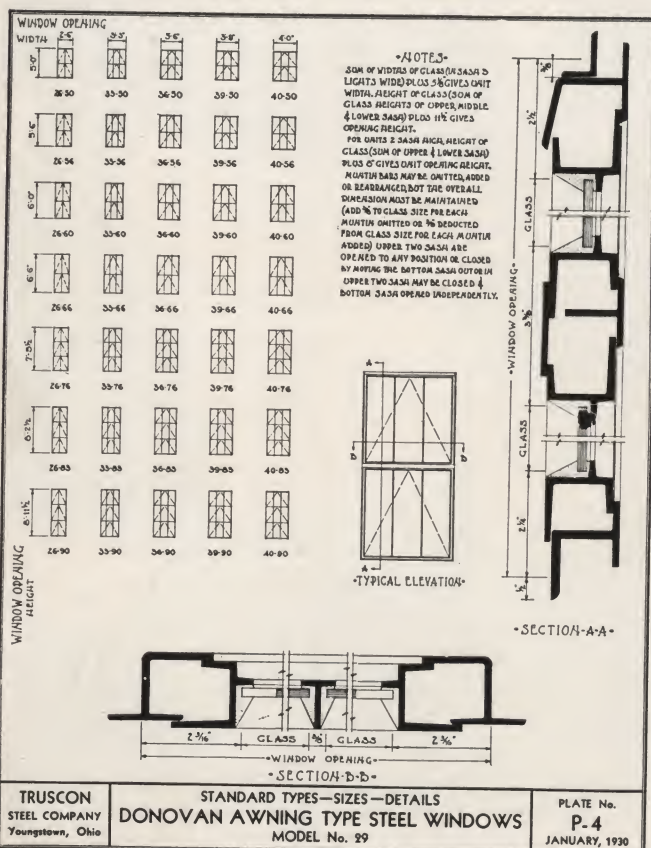
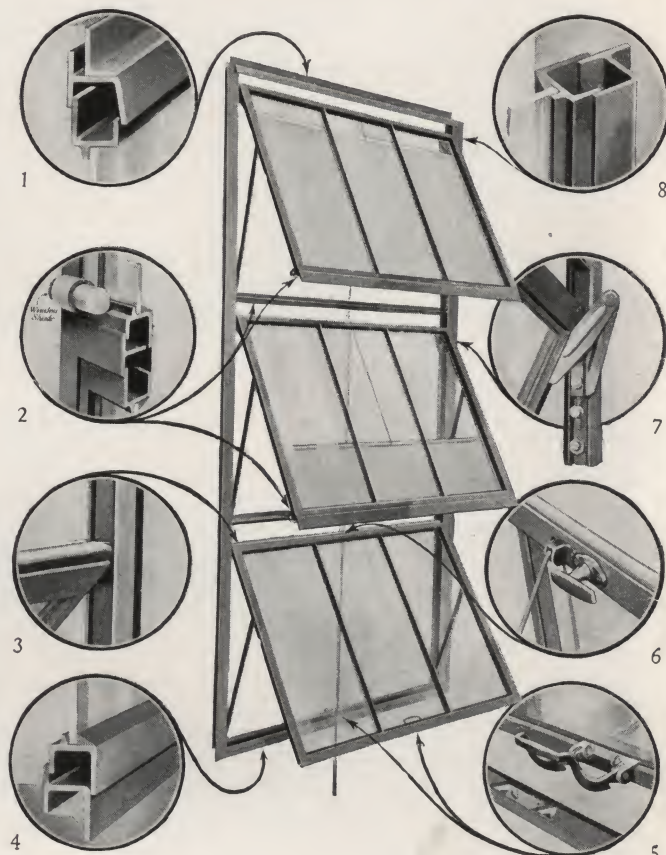
An essential feature is the method of attaching shades, one to the lower rail of each vent (see illustration), which makes it an easy matter, when the vents are open to shut out the direct rays of the sun without interfering with the daylight illumination or in any way obstructing ventilation.

Donovan Windows are easily cleaned from the inside with safety and economy, and cost no more than common types. Their perfected form is the outcome of long experience, often making possible a saving of from ten to fifteen percent in building costs by removing the necessity of expensive plenum systems.

Heavy bronze hardware is included in the construction of these windows.

CONSTRUCTION DETAILS

(1) The Head Construction—Utilizes a heavy Tee section as a bearing against which the top ventilator makes a two-point con-



tact that is positive and weathertight. An angle welded to the Tee bar provides an anchorage fin that insures a tight installation at the lintel.

(2) The Meeting Rails—Are Tee sections, which in combination with the drip strip, provide a two-point flat contact bearing for the rails of the ventilators. Note that the shade bracket is placed close to the ventilator to prevent infiltration of light.

(3) The Bottom Ventilator Pivots—Are ruggedly constructed. When the bottom ventilator is released from the others by use of the clutch the pivot pins are pulled and the bottom ventilator guided by shoes, as shown. Spring pressure snaps the pins back into position for regular operation.

(4) The Sill—Also utilizes two-point flat contact construction to assure weather-tightness, and in addition, the longest leg of the sill member is placed on the outside to make weather-tight contact with the masonry.

(5) The Locking Handle and Strike—Permit the window to be locked by a simple down and inward pull, practically automatic. The handle is shaped and placed so that the knuckles of the operator cannot be scraped on the sill. This handle provides complete operation of all superposed vents.

(6) The Releasing Handle or Clutch—Disconnects the bottom ventilator from the others, allowing the lower ventilator to be operated independently from the balance of ventilators.

(7) The Upper Ventilator Hinges—Are fastened to the connecting bars by screws and to the ventilators by welds. The tightness of the ventilators can be increased or relieved by moving these hinges up or down on the bars. The adjustment is easily made with a screwdriver.

(8) The Jambs—Also utilize the two-point flat contact weathering system, the same Tee section being used here as at the head and sill, providing exceptionally fine contact with masonry or mullions.

RESIDENCE CASEMENTS

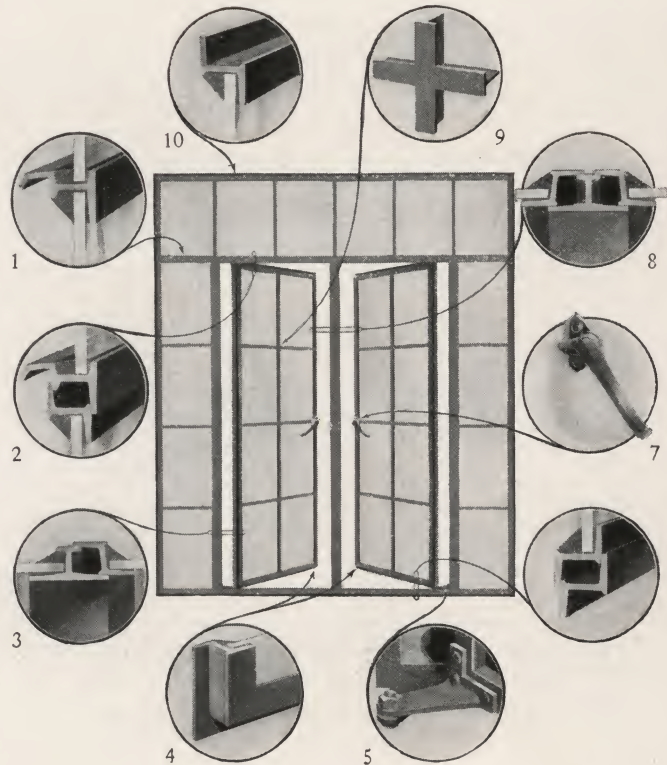
SERIES 5

TRUSSON Casements are modern windows of inherent beauty, architectural harmony, simplicity, fine quality and superior craftsmanship. Constant effort toward their improvement has resulted in many changes—the sections are of better design, the hardware is artistic, the weathering is positive and screening has been developed so that the complete casement presents a degree of refinement.

Single and combination casements in a large range of sizes, with or without sill ventilators or transoms, permit a selection of the exact types to meet individual requirements.

CONSTRUCTION DETAILS

- (1) **Transom Bar Section**—Showing shape and position when used in a unit having fixed transom and side lights.
- (2) **Swing Leaf Head Section and Transom Bar**—Specially designed transom section with drip as an integral part, affording protection to swing leaf below. Continuous from jamb to jamb.
- (3) **Interior Supporting Member for Swing Leaf**—Heavy tee section forming jamb for swing leaf, with double contact weathering and insulating air space.
- (4) **Corners of Frame and Swing Leaf**—Corners of swing leaf and frame are mitered, electrically butt welded and ground smooth.
- (5) **Friction Type Extension Hinge**—Allows for easy cleaning of windows from inside and, when adjusted, has the proper amount of friction to hold swing leaf in any desired position. No subsequent adjusting required.
- (6) **Sill Section of Zee Bars**—Affording ease for erection in any type of construction; showing wide double contact weathering.
- (7) **Artistic Handle**—Standard handle with a neat black lacquer finish. Also furnished in chromium, Butler nickel or solid bronze.
- (8) **Vertical Meeting Rail**—Showing the specially designed heavy hot-rolled section as used in combination units for meeting rail. Provides maximum weathering, insulating air space, and rigidity.
- (9) **Muntin Intersections**—Made with a mitered and mechanically interlocked joint obtaining the maximum strength of muntin bars and securing a neat, flush surface on the inside.



Vertical and horizontal muntins are of the same size affording a uniform putty face and permitting a satisfactory glazed installation.

(10) **Zee Bar Sections**—Used for outside frame members of all combinations and for stiles and rails of swing leaves.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown outside putty glazed, provided glass lights do not exceed 125 square inches.

SPECIFICATIONS

(1) **General**—All window openings shown on drawings, unless otherwise specified, shall be fitted with Residence Casements, Series 5, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution will be permitted without the written approval of the architect.

(2) **Scope of Work**—This contractor shall include in his work the furnishing of all steel casements complete, the adjusting after erection but before glazing, and the attaching of hardware, all as called for on drawings and specified herein. This contractor shall also furnish the necessary non-staining mastic as called for in the manufacturer's standards.

(3) **Work and Material Not Included**—Glass, putty, glazing, field painting and caulking are not included in this contract.

(4) **Material**—Truscon specification, low carbon new billet, hot-rolled steel, shall be used in the manufacture of all members.

(5) **Construction**—(a) All casements and standard combinations shall be manufactured in complete units at factory. The nominal glass size shall be 8x12 in.

(b) All frames, stiles and rail members of swing leaves shall be Zee bars. All corners shall be mitered and electrically butt welded. Exposed faces at welds shall be ground smooth.

(c) All muntins shall be Tee Bars with a $\frac{5}{8}$ in. face and a depth of $\frac{7}{8}$ in., and shall be continuous between rails and stiles. At intersections there shall be a mechanical joint rigidly interlocking the muntins flush with face on the inside.

(Continued on page 12)

(d) Joints of muntins with frames, stiles and rails shall be tenoned, mortised and air hammer riveted. Horizontal muntins shall be punched for glazing clips.

(e) Windows shall be hinged to swing right or left as indicated. Continuous double contact weathering between swing leaves and frame shall be provided.

(f) All side hung swing leaves shall open outward and be equipped with heavy extension (cleaning) hinges securely riveted to rails of swing leaves and electrically welded or riveted to frames.

(g) Transom ventilators shall be hinged at the top to open out and shall be equipped with close-up friction hinges.

(h) Sill ventilators shall be bottom hinged to open in and shall be equipped with steel butt hinges. All sill ventilators shall be prepared to receive standard fixed type screens applied to the outside. No special screen hardware necessary.

(i) Hinges shall be of the special Truscon friction type, designed to hold window open in any desired position.

(j) Where combinations of standard units are required for any single opening, vertical and horizontal mullions shall be used to join them.

(k) A continuous drip shall be provided on transom bars of all standard swing leaf combinations, or at the head when the ventilator extends full height of the opening.

(l) All units shall be drilled to receive standard shade bracket hardware.

(6) **Hardware**—(a) All hardware shall be shipped unattached and packed separately to prevent damage and shall be applied after erection and painting.

NON-SCREEN TYPE

(b) The cam action locking handle shall be of standard design furnished in black lacquer finish, and shall be attached to swing leaves (side hung). Beveled brass strike plate shall be attached to frame (see note).

(c) Standard push bars in black lacquer finish shall be furnished for all top hung transom units.

(d) Concealed friction adjusters shall be provided for all sill ventilators; two adjusters per ventilator.

SCREEN TYPE

(e) Screen type hardware shall be fully automatic and positive and shall control the swing leaf independently of the screen.

(f) Standard screen type hardware shall consist of Auto-Lock Underscreen Operator and concealed latch locking handle. Operator shall have a black finish case, and Old English Bronze finish bar. The locking handle shall be Old English Bronze finish.

Where desired, Artex Underscreen Operator will be furnished in place of Auto-Lock, at a slight extra cost. Artex Underscreen Operator has a black lacquer finish case and Old English Bronze finish handle.

(7) **Painting**—Casements shall be given one prime coat of steel grey mineral paint at factory before shipment.

(8) **Glazing**—All casements shall be glazed on the outside. Glass shall be held in place by Truscon copper clad, spring steel wire glazing clips. All glass shall be bed and face puttied with Truscon special casement window putty.

(9) **Erection**—(a) Each unit shall be set plumb and true, aligned after installation and adjusted before glazing.

(b) Mastic in sufficient quantity shall be used in setting and bedding frames where they come in contact with mullions or wall construction.

(When so desired, the Erection Division of TRUSCON STEEL COMPANY will contract for the erection and adjusting of all casements in prepared openings.)

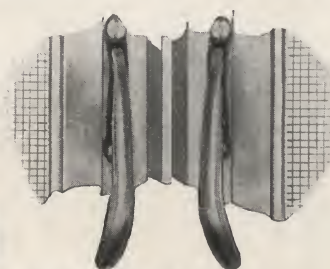
Notes: Muntin bars may be omitted for use of leaded glass of any pattern, or for single lights. Glazing clips and mastic are furnished and shipped with casements without additional charge.

Cam locking handles can be supplied in Old English Bronze, Butler Nickel or Chromium finish, at an additional cost. Architect to specify finish.

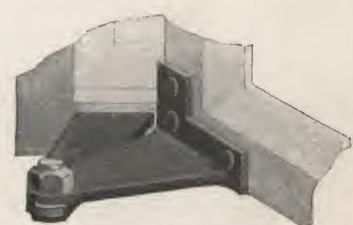
HARDWARE FOR RESIDENCE CASEMENTS—SERIES 5



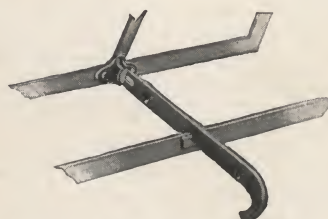
Standard Locking Handles



Screen Type Locking Handles



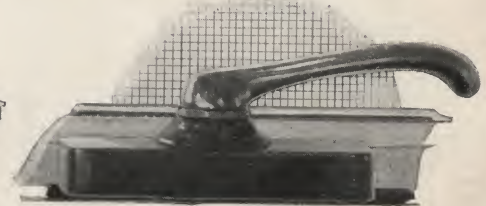
Extension Hinge



Standard Push Arm for Top Hinged Ventilator



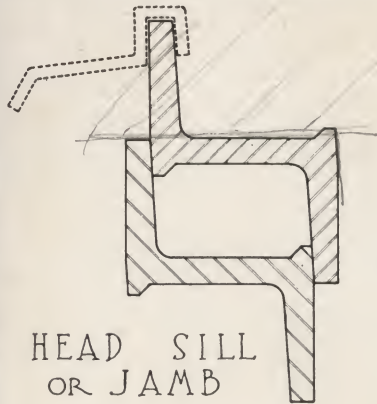
Screen Type Push Arm for Top Hinged Ventilator



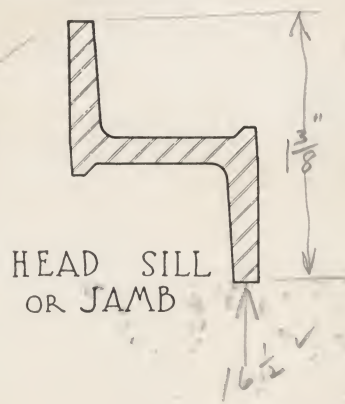
Artex Underscreen Operator



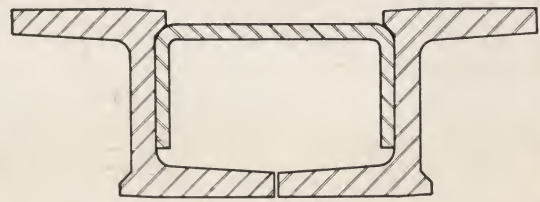
Auto-Lock Underscreen Operator



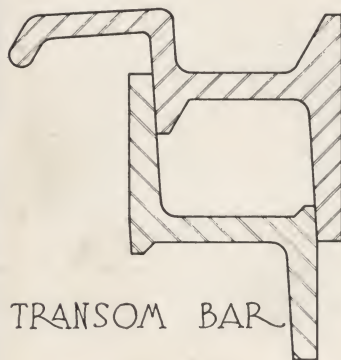
HEAD SILL
OR JAMB



HEAD SILL
OR JAMB



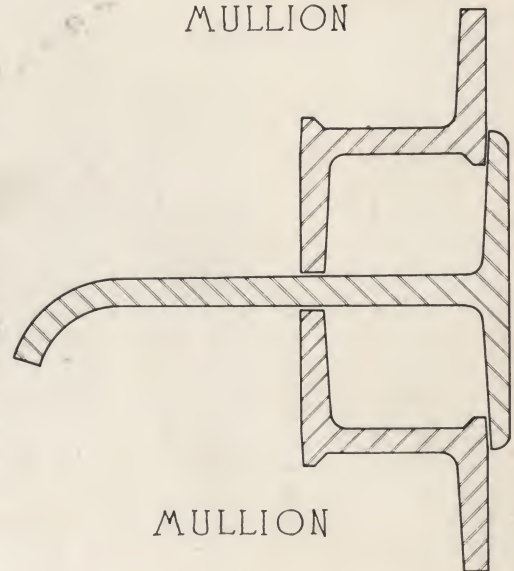
MULLION



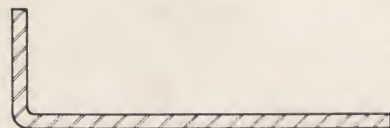
TRANSOM BAR



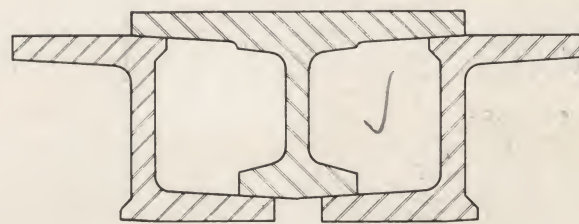
TRANSOM BAR



MULLION



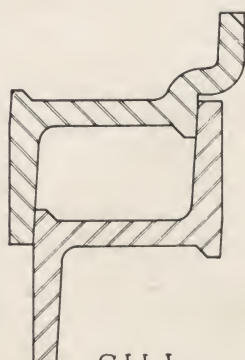
JAMB ANGLE



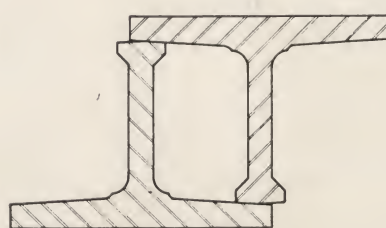
MEETING RAIL



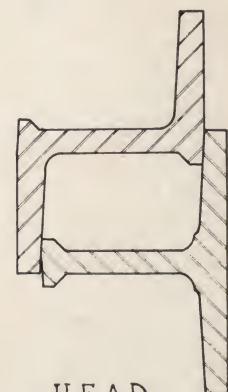
MUNTIN



SILL
(HOPPER VENT)



JAMB
(HOPPER VENT)



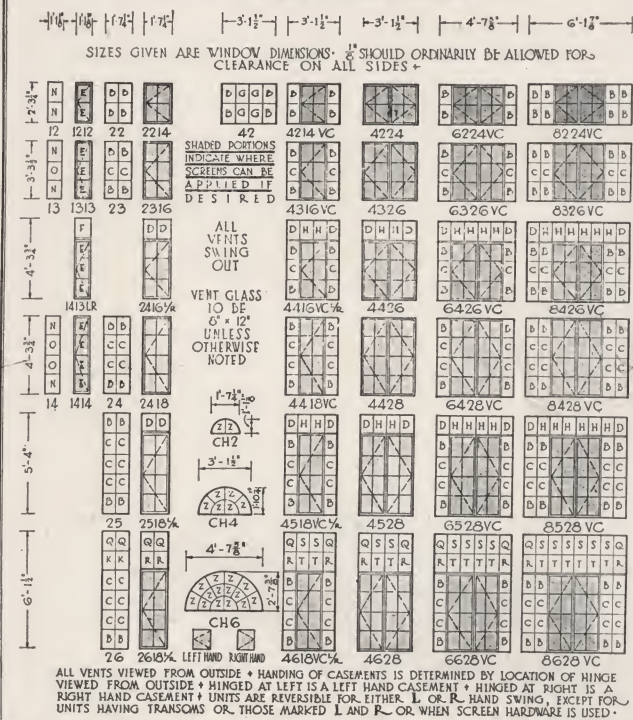
HEAD
(HOPPER VENT)

TRUSCON
STEEL COMPANY
Youngstown, Ohio

FULL SIZE SECTIONS
RESIDENCE CASEMENTS
SERIES 5

PLATE No.
CR-22
OCTOBER, 1932

STANDARD STOCK UNITS

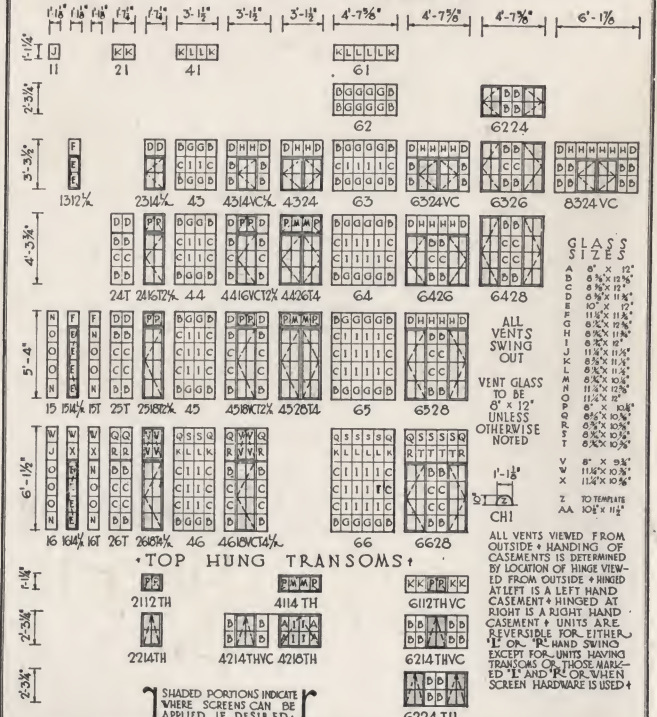


TRUSCON STEEL COMPANY
Youngstown, Ohio

TYPES AND SIZES
RESIDENCE CASEMENTS
SERIES 5

PLATE No.
CR-21
OCTOBER, 1932

MADE-TO-ORDER UNITS

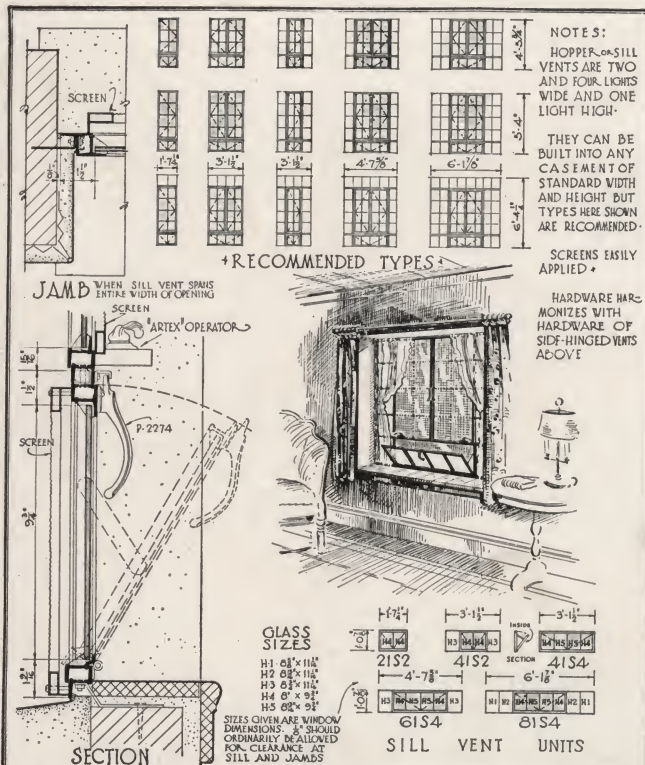


TRUSCON STEEL COMPANY
Youngstown, Ohio

TYPES AND SIZES
RESIDENCE CASEMENTS
SERIES 5

PLATE No.
CR-21A
OCTOBER, 1932

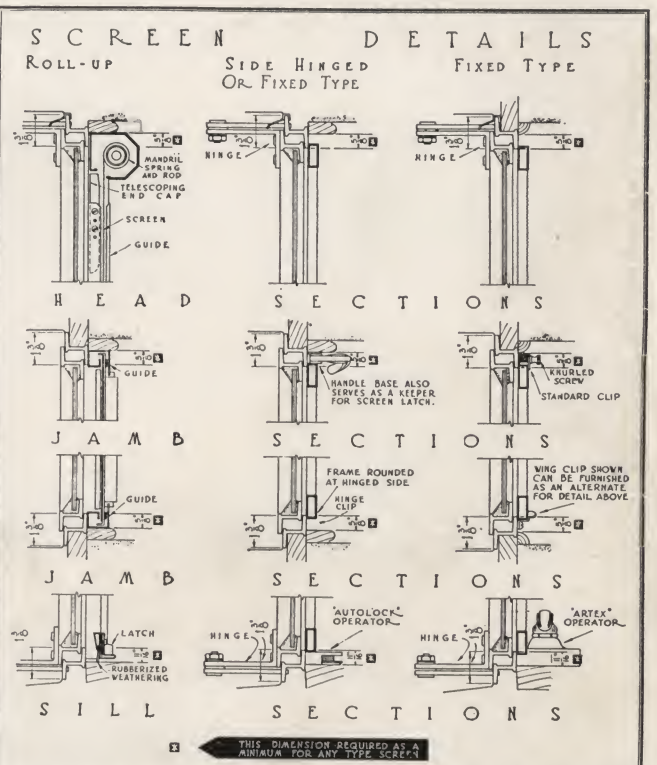
[SPECIFICATIONS ON PAGE 11]



TRUSCON STEEL COMPANY
Youngstown, Ohio

TYPES AND SIZES
RESIDENCE CASEMENTS
SERIES 5

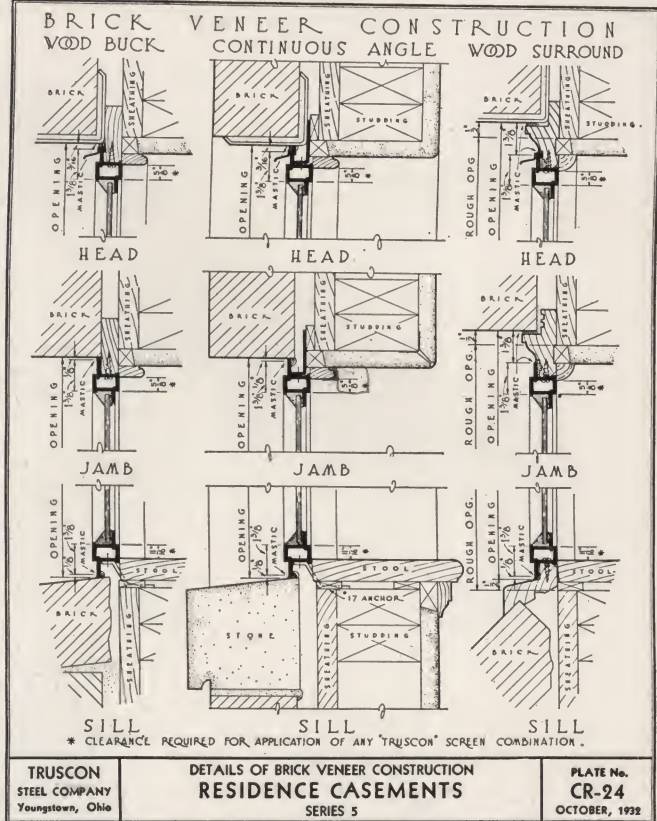
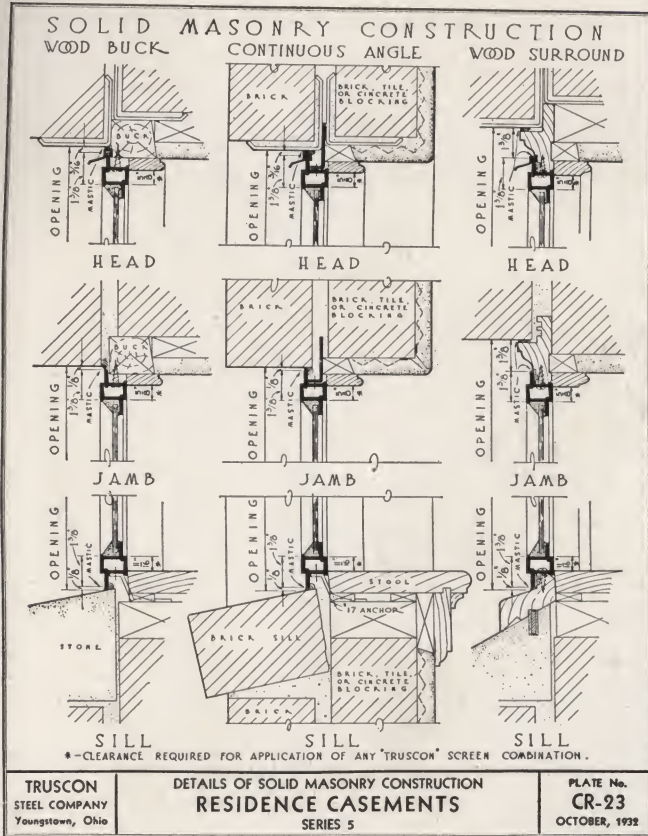
PLATE No.
CR-21B
OCTOBER, 1932



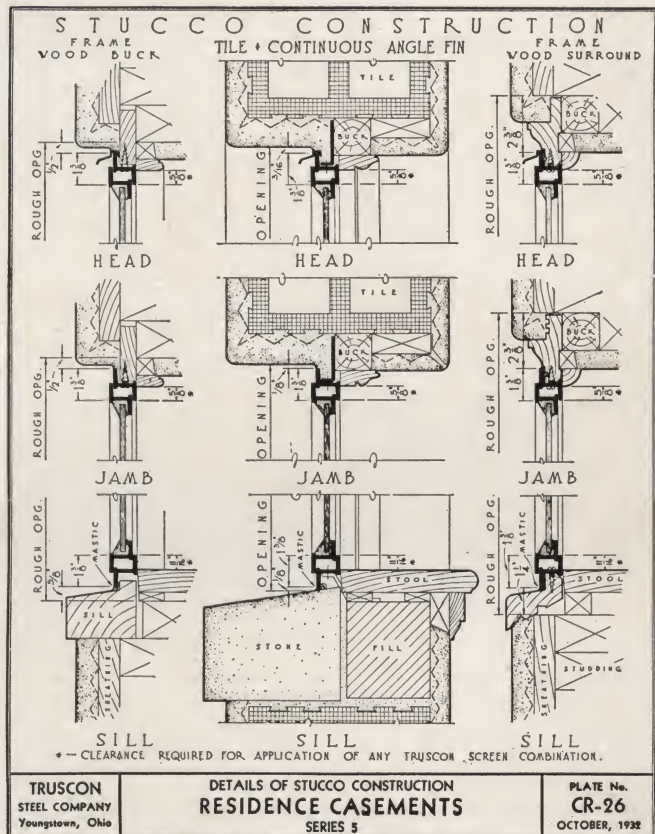
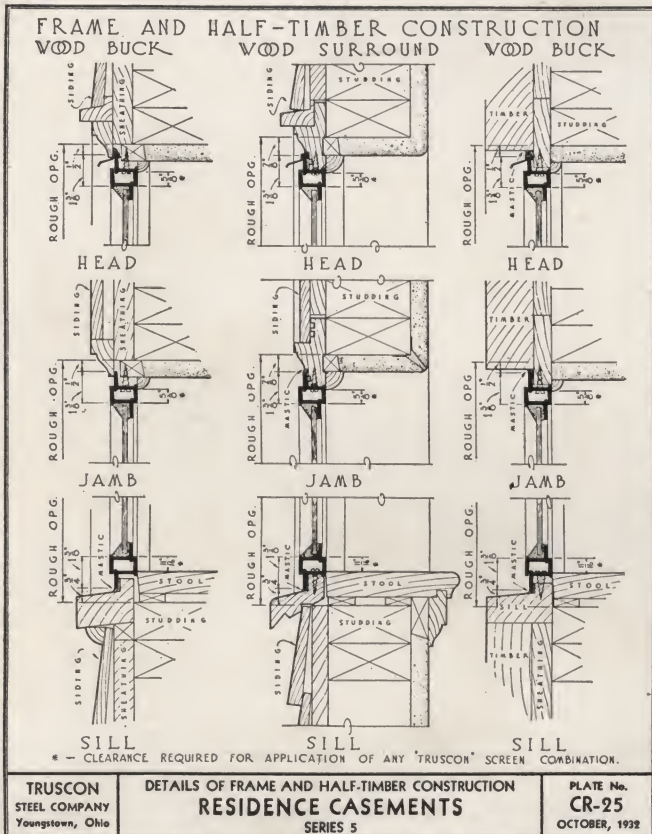
TRUSCON STEEL COMPANY
Youngstown, Ohio

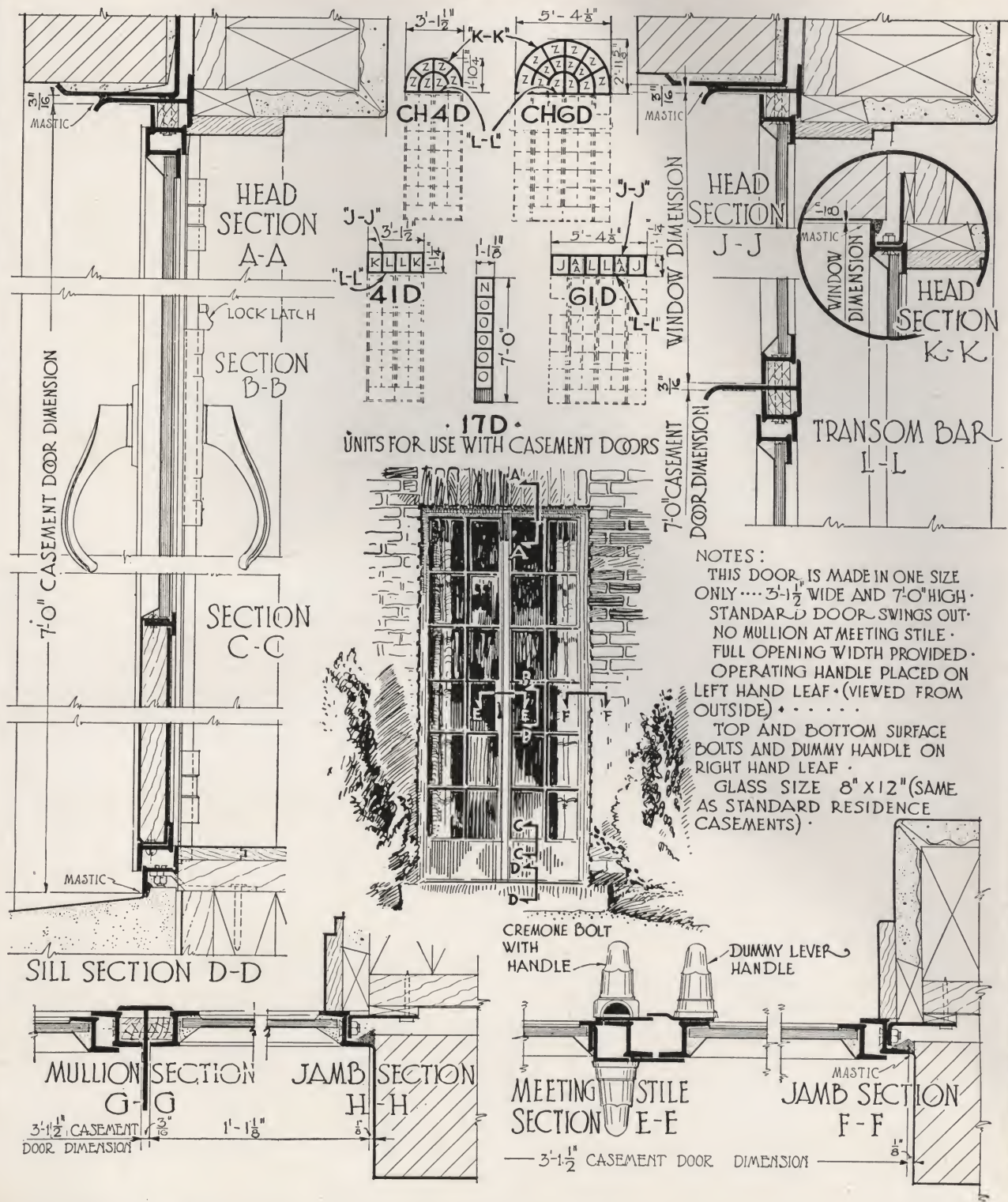
SCREEN DETAILS
RESIDENCE CASEMENTS
SERIES 5

PLATE No.
CS-1
OCTOBER, 1932



[SPECIFICATIONS ON PAGE 11]





TRUSCON
STEEL COMPANY
Youngstown, Ohio

STANDARD DETAILS

RESIDENCE CASEMENT DOORS

SERIES 5

PLATE No.
CR-32
OCTOBER, 1932

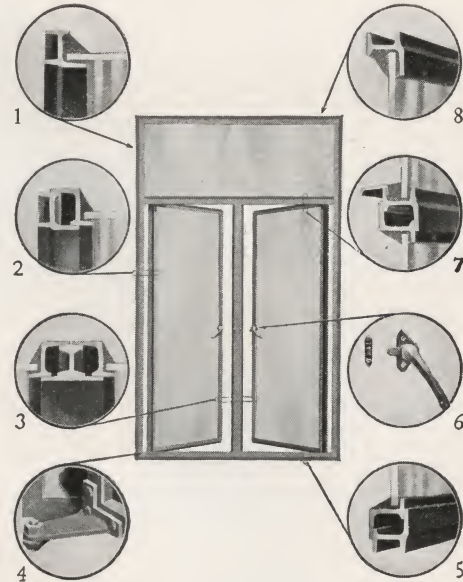
ARCHITECTURAL CASEMENTS

SERIES 15

THE Architectural Casement, Series 15, has been designed to fill the need of a heavier type of casement for better class residential and apartment work. These windows lend themselves to the latest architectural developments and can be adapted to meet any desired specification.

CONSTRUCTION DETAILS

- (1) **Jamb Section**—Cross section of continuous frame member at jambs. All corners of frame are mitered, butt welded and ground smooth before assembly.
- (2) **Jamb Section Through Frame Member and Swing Leaf Section**—Showing positive $\frac{3}{8}$ in. double contact weathering.
- (3) **Vertical Meeting Rail Between Swing Leaves**—Note Heavy Tee section, flush on inside with frame, compact assembly and $\frac{3}{8}$ in. positive double-contact weathering.
- (4) **Extension Type Friction Hinge**—Permits easy cleaning of windows from the inside and holds swing leaf in any desired position without the use of an adjuster. Bronze bushings assure long wear.
- (5) **Sill Section**—Cross section through bottom rail of swing leaves and frame section, showing $\frac{3}{8}$ in. positive double-contact weathering.
- (6) **Locking Handle and Strike**—Pure in design. Made of forged bronze in old English finish. Other finishes available when specified.
- (7) **Detail of Transom Bar**—With fixed transom light above and swing leaves below, showing $\frac{3}{8}$ in. double-contact weathering.
- (8) **Head Section**—Cross-section of frame at head when fixed transom light is required. Frame section continuous from jamb to jamb.



UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown, either inside head or outside putty glazed, provided glass lights do not exceed 125 square inches using standard muntin bar, or 350 square inches using extra heavy muntin bar.

SPECIFICATIONS

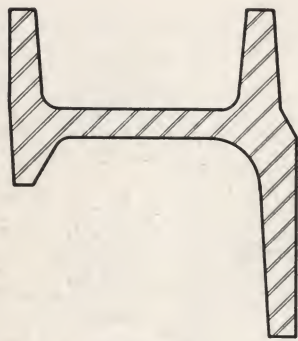
- (1) **General**—All window openings shown on the drawings, unless otherwise specified, shall be fitted with Architectural Casements, Series 15, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitutions will be permitted without the written approval of the architect.
- (2) **Material**—Truscon specification, new billet, hot-rolled, copper-bearing steel shall be used in the manufacture of all members.
- (3) **Construction**—(a) *All units* shall be square and true and constructed of sections not less than $1\frac{1}{8}$ in. deep. The combined weight of frame and ventilator sections exclusive of glazing beads or sub-frames shall be not less than 3.51 pounds per linear foot. The outside framing section shall be a channel leg section continuous from sill to head and jamb to jamb and shaped for double flat contact weathering of not less than $\frac{3}{8}$ in. between frames and swing leaves. Each corner of swing leaves and frames shall be mitered, electrically butt welded and ground smooth before assembly.
- (b) *Muntins* shall be specially designed Tee Bar sections and shall be continuous between rails and stiles. At intersections there shall be a mechanical joint rigidly interlocking the muntins flush with each other. Joints of muntins and frames, stiles and rails shall be tenoned, mortised and air-hammer riveted (see note).
- (c) *All stiles, rails, frames and muntins* shall be prepared for outside putty glazing with spring clips.
- (d) *All side hinged swing leaves* shall swing out, unless otherwise specified, and shall be equipped with Truscon design friction type, bronze bushed hinges designed to hold the swing leaf open in any desired position. Transoms shall be equipped with steel butt bronze pin hinges.
- (e) *A continuous drip* shall be provided on transom bars of all standard swing leaf combinations, or at the head where ventilators extend full height of the opening.
- (f) *Windows* shall be prepared to receive either screen type or non-screen type hardware as hereinafter specified.
- (4) **Hardware**—
 - (a) *All hardware* shall be forged bronze, Old English finish.
 - (b) For side hinged swing leaves up to and including five

NON-SCREEN TYPE

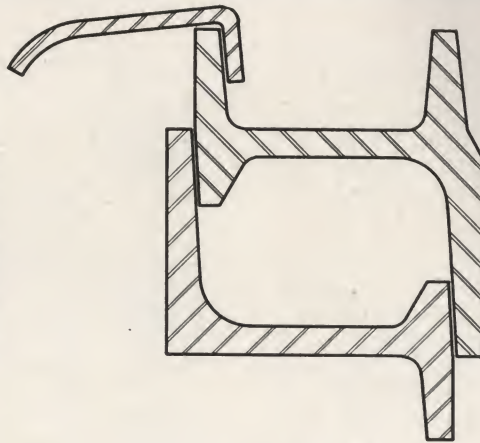
- (c) For top hinged transoms a bronze push arm shall be furnished.
- (d) For double vented units with clear opening (no meeting rail) bronze cremone bolt hardware shall be furnished.

SCREEN TYPE

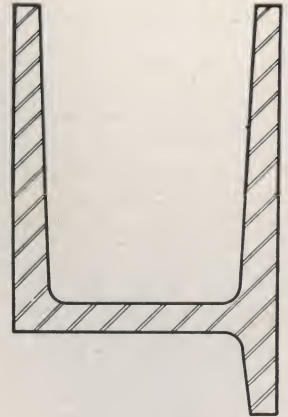
- (e) Screen type hardware shall be fully automatic and positive and shall control the swing leaf independently of the screen.
 - (f) Standard screen type hardware for *side hinged swing leaves* shall consist of Auto-Lock Underscreen Operator and concealed latch locking handle. Operator shall have a black lacquer finish case and solid bronze Old English finish bar. The locking handle shall be solid bronze Old English finish.
 - (g) Standard screen type hardware for top hung transom leaves shall consist of heavy bronze Old English finish push arm operating through the frame or transom bar section.
- Where desired, Artex Underscreen Operator will be furnished in place of Auto-Lock at a slight extra cost. Artex Underscreen Operator shall have a black lacquer finish case and Old English bronze finish handle.
- (5) **Painting**—Casements shall be given one coat of protective paint at factory before shipment.
 - (6) **Glazing**—All casements shall be glazed on the outside with glazing clips (See note).
 - (7) **Erection**—(a) *Each unit* shall be set plumb and true in the opening, securely wedged and held in alignment during construction. After windows have been placed in opening and before they have been glazed, the ventilator shall be carefully adjusted.
 - (b) *Non-staining Mastic* in sufficient quantity shall be used in setting and bedding frames where they come in contact with mullions or wall construction.
- Notes: Muntin bars may be omitted for use of leaded glass of any pattern, or for single lights.
Units entirely fixed or entirely ventilated may be inside bead glazed if desired and so specified.
Architectural Casements, Series 15, can be furnished to "open in."



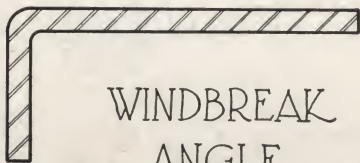
HEAD



HEAD OR
TRANSOM



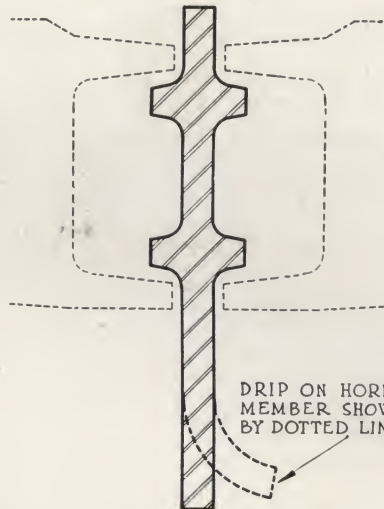
HEAD



WINDBREAK
ANGLE

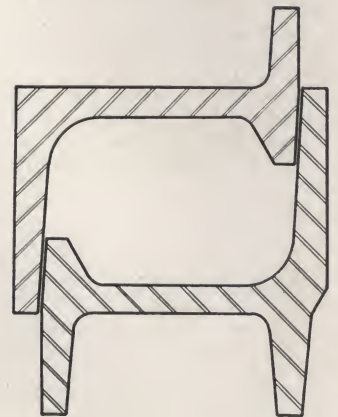


MUNTIN

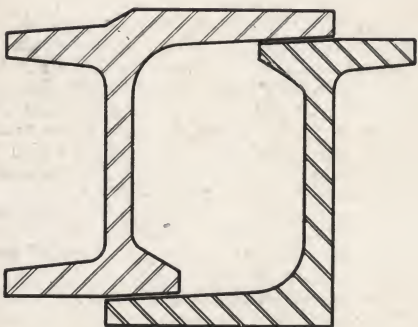


D RIP ON HORIZ.
MEMBER SHOWN
BY DOTTED LINES

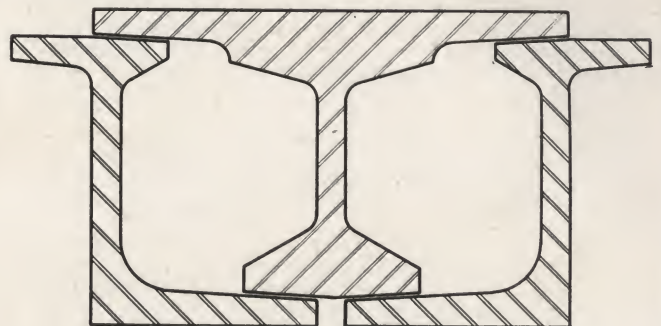
MULLION
VERTICAL OR HORIZONTAL



SILL



JAMB



MEETING RAIL

TRUSCON
STEEL COMPANY
Youngstown, Ohio

FULL SIZE SECTIONS
ARCHITECTURAL STEEL CASEMENTS
SERIES 15

PLATE No.
CA-4
OCTOBER, 1932

CASEMENT INSTALLATIONS



Chellis Austin Apartments
Newark, N. J.

EDMUND C. STOUT, Architect
and Engineer
VOORHEES, GELIN & WALKER
Consulting Architects



Y. M. C. A. College
Youngstown, Ohio
PAUL BOUCHERLE, Architect



Firmin Desloge Hospital
of St. Louis University, St. Louis, Mo.

ARTHUR J. WIDMER & ASSOCIATES, INC., and
STUDY & FARRAR, Associated Architects



Porcelain Enameled Steel Home
Cleveland, Ohio

CHARLES BACON ROWLEY & ASSOCIATES, INC., Archts.



Residence
Larchmont Ridge, N. Y.



Drake Hotel
New York City
EMERY ROTH, Architect



Nashville General Hospital
Nashville, Tenn.

ASMUS & CLARK, Architects

STANDARD AND STOCK UNITS
ARCHITECTURAL STEEL CASEMENTS
SERIES 15

PLATE No. CA-1
OCTOBER, 1932

TRUSCON STEEL COMPANY
Youngstown, Ohio

GLASS SIZES

A - 8" x 11"	B - 8" x 11 1/2"	C - 9" x 11 1/2"	D - 11 1/2" x 11"	E - 8 1/2" x 11"	F - 8 1/2" x 11"	G - 9" x 11"	H - 11 1/2" x 11 1/2"	I - 8 1/2" x 11 1/2"	J - 9 1/2" x 11 1/2"	K - 8" x 10 1/2"	L - 9 1/2" x 9 1/2"	M - 8" x 9 1/2"	N - 10" x 10 1/2"	O - 10" x 11 1/2"	P - 14 1/2" x 22 1/2"	Q - 16 1/2" x 16 1/2"	R - 16 1/2" x 14 1/2"	S - 16 1/2" x 13 1/2"	T - 10" x 11"	U - 8" x 8 1/2"	V - 5" x 10 1/2"	W - 10" x 10"	X - 5 1/2" x 8 1/2"	Y - 8 1/2" x 12 1/2"	Z - TEMPLATE
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ANY STANDARD SCREEN COMBINATION CAN BE FURNISHED FOR ALL VENTILATORS WHICH ARE SHADED.

DIMENSIONS SHOWN ARE OPENING SIZES

* RECOMMENDED FOR STOCK.

TYPES NOTED WITH SUFFIX OL AND OR ARE TYPES WITH OFFSET OL AND OR ARE INDICATING THE JAMB WHERE VENT IS LOCATED. GLASS SIZES NOT SHOWN ARE TO BE 8" x 11". VENTS MAY BE MADE TO SWING IN. MUNTIN BARS MAY BE OMITTED IF SPECIFIED.

STANDARD AND STOCK UNITS
ARCHITECTURAL STEEL CASEMENTS
SERIES 15

PLATE No. CA-2
OCTOBER, 1932

TRUSCON STEEL COMPANY
Youngstown, Ohio

CIRCLE HEADS

SPANISH TYPES

NOTES

- * RECOMMENDED STOCK.
- ALL CASEMENTS ARE VIEWED FROM THE OUTSIDE.
- HANDING OF CASEMENTS IS DETERMINED BY THE LOCATION OF HINGES. HINGED AT THE RIGHT IS A RIGHT HAND CASEMENT. HINGED AT THE LEFT IS A LEFT HAND CASEMENT.
- ACTUAL WINDOW SIZES ARE 1/2" INCH SMALLER THAN OPENING DIMENSIONS.
- ALL CASEMENTS TO BE SET IN PLASTER CEMENT WHERE COMING IN CONTACT WITH THE MASONRY. STANDARD MULLION DIMENSION 1/2".
- WHERE MULLIONS ARE USED, TO OBTAIN OPENING DIMENSIONS SIMPLY ADD TOGETHER OPENING DIMENSIONS OF THE SPECIFIC WINDOWS TO BE COMBINED.
- UNLESS OTHERWISE NOTED GLASS SIZE TO BE 8" x 11".
- MUNTIN BARS MAY BE OMITTED IF DESIRED.
- VENTS MAY BE MADE TO SWING IN IF DESIRED.

[SPECIFICATIONS ON PAGE 17]

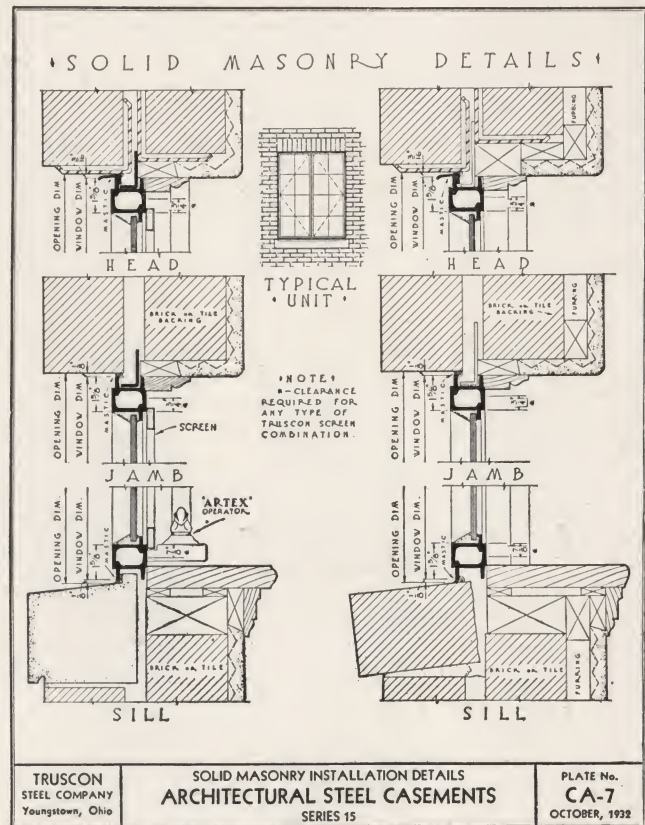
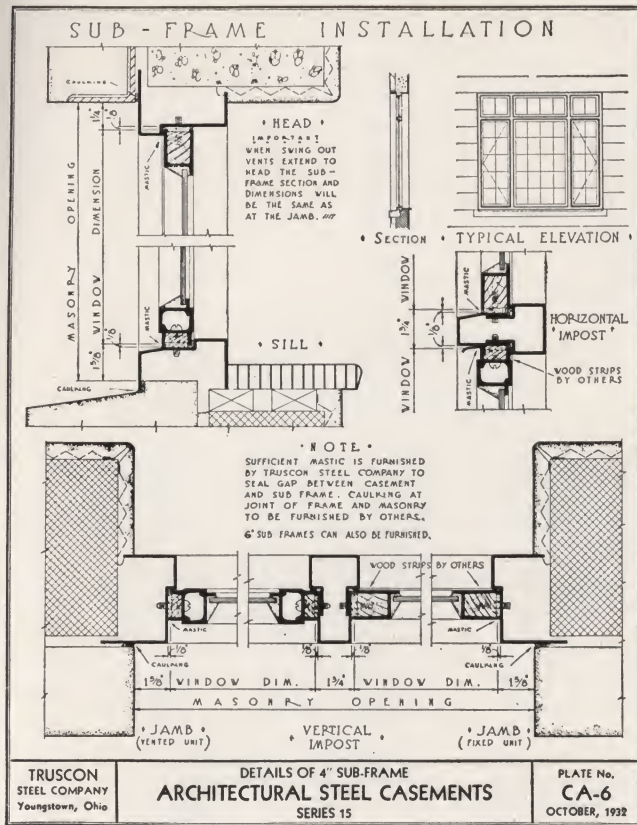
MADE-TO-ORDER UNITS
ARCHITECTURAL STEEL CASEMENTS
SERIES 15

PLATE No. CA-3
OCTOBER, 1932

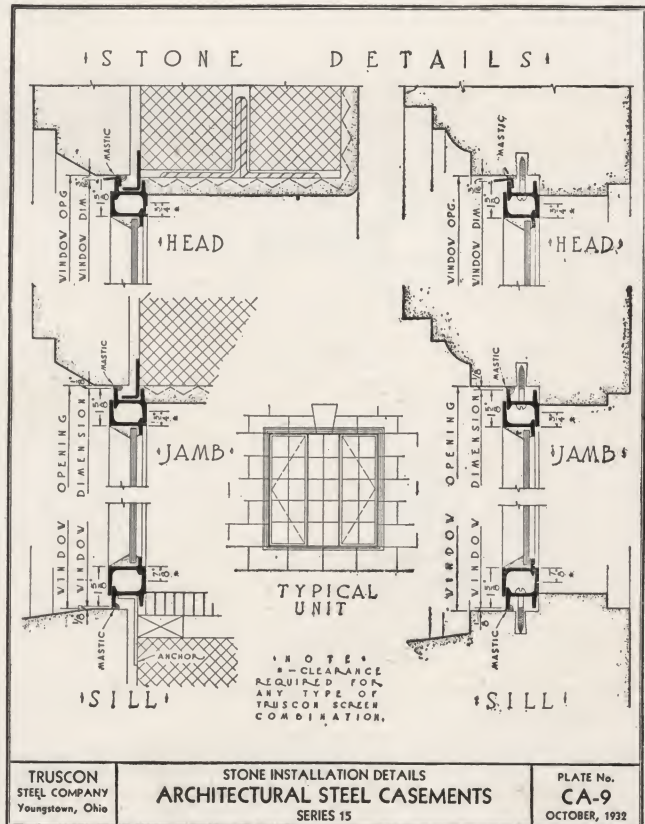
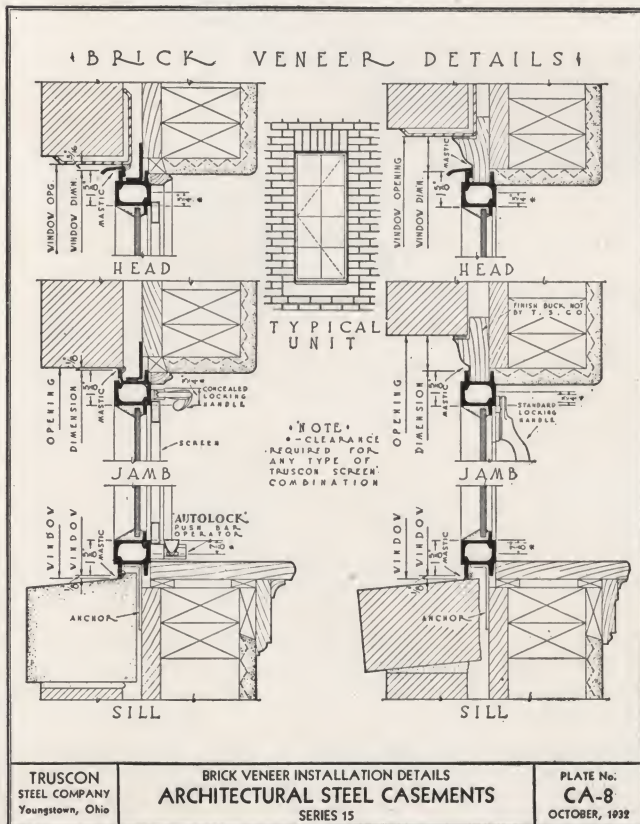
TRUSCON STEEL COMPANY
Youngstown, Ohio

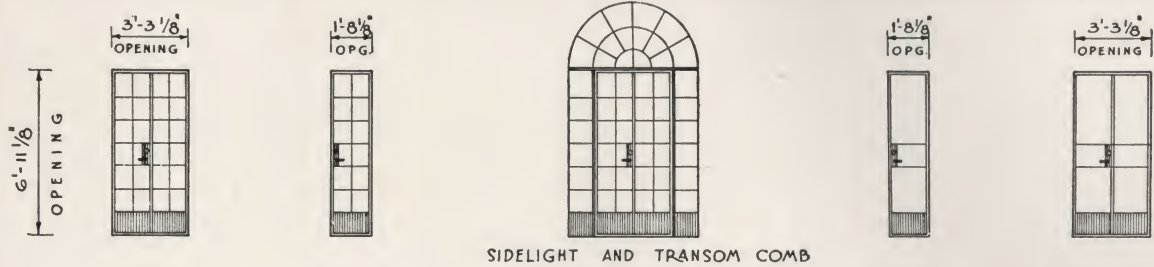
DIMENSIONS SHOWN ARE OPENING SIZES.

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[SPECIFICATIONS ON PAGE 17]





SIDELIGHT AND TRANSOM COMB

TYPICAL DESIGNS OF SINGLE AND DOUBLE DOORS

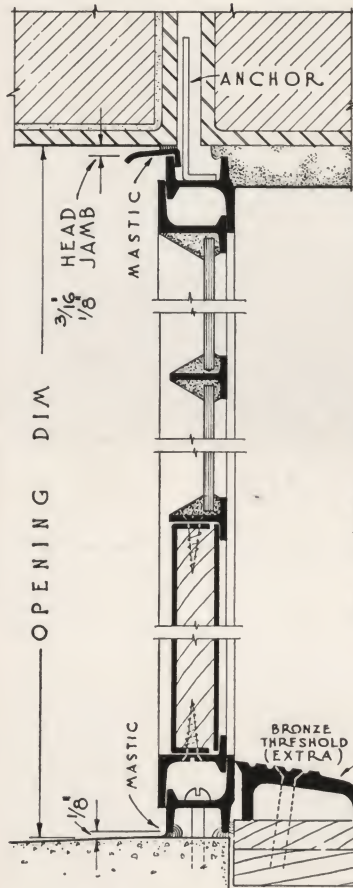
• NOTES •

CASEMENT DOORS ARE PROVIDED WITH CYLINDER LOCK WITH THUMB TURN ON THE INSIDE OF THE DOOR. ♦ ♦ ♦

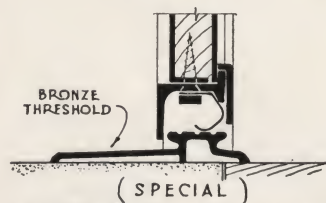
EACH LEAF IS TO BE PROVIDED WITH THREE BUTT HINGES OF STEEL WITH BRASS PINS BUT BRONZE BUTTS MAY BE FURNISHED IF DESIRED. ♦ ♦ ♦

DOUBLE SWING DOORS HAVE CONCEALED TOP AND BOTTOM BOLTS FURNISHED ON THE INACTIVE LEAF. ♦ ♦ ♦

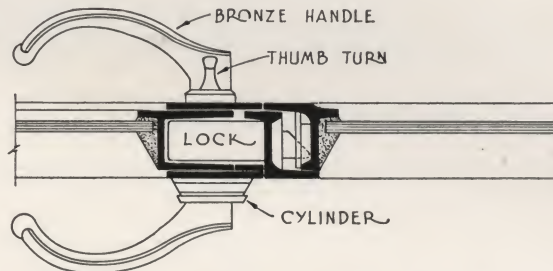
A NUMBER OF DIFFERENT TYPES OF SIDELIGHTS AND TRANSOM UNITS ARE AVAILABLE MAKING MOST ANY DESIGN OF OPENING POSSIBLY DESIRED. ♦ ♦



SWING OUT DOOR
(STANDARD)



ALTERNATE SILL DESIGN
THRESHOLD AS PART OF FRAME



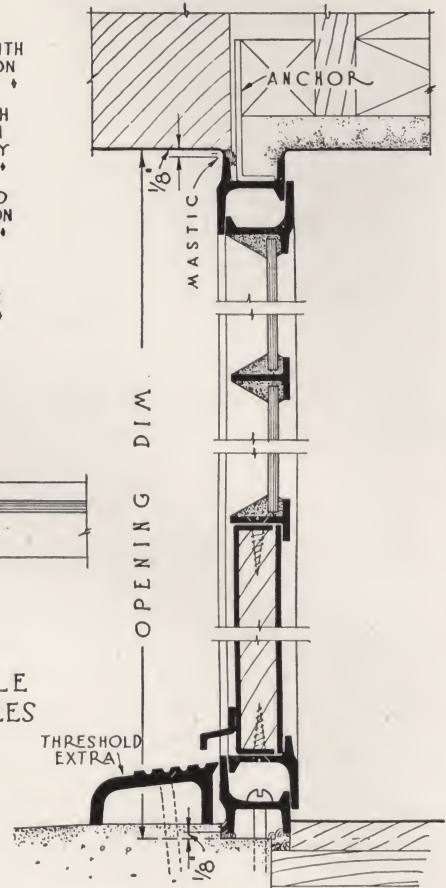
DETAIL AT MEETING STILE
SHOWING LOCKING HANDLES
(SWING OUT DOOR)

• NOTES •

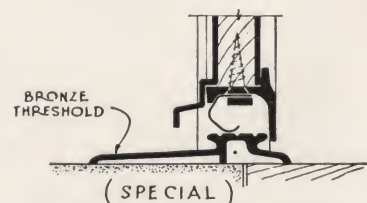
THRESHOLDS AS SHOWN ON STANDARD DOORS ARE ONLY FURNISHED WHEN SPECIFIED AND ARE AN EXTRA. ♦ ♦

DUMMY HANDLES FOR INACTIVE LEAF MAY BE FURNISHED. ♦ ♦

DETAILS AT BOTTOM OF PLATE SHOW A BRONZE THRESHOLD AS PART OF THE DOOR FRAME THIS DETAIL IS SPECIAL. ♦ ♦



SWING IN DOOR
(STANDARD)



ALTERNATE SILL DESIGN
THRESHOLD AS PART OF FRAME

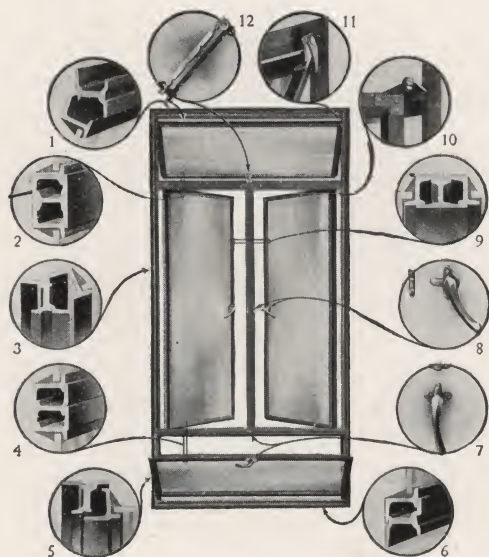
TRUSCON
STEEL COMPANY
Youngstown, Ohio

STANDARD DETAILS
ARCHITECTURAL CASEMENT DOORS
SERIES 15

PLATE No.
CA-10
OCTOBER, 1932

MONUMENTAL WINDOWS CASEMENT TYPE

MONUMENTAL Windows are suitable for installation in buildings of a monumental character. The sections are especially heavy and the entire window imparts a feeling of massiveness and strength thoroughly in keeping with the types of buildings for which it was developed.



Series 15C

CONSTRUCTION DETAILS

(1) **Head of Ventilated Transom**—Cross section of outside frame, $\frac{3}{8}$ in. double contact weathering and top rail of transom vent.

(2) **Transom Bar** between swing leaf and transom. Note heavy Tee section, compact assembly with $\frac{3}{8}$ in. double contact weathering and drip section.

(3) **Jamb of Ventilated Casement**—Showing outside frame, $\frac{3}{8}$ in. double contact weathering and side rail of ventilator.

(4) **Meeting Rail** between Sill Vent and Swing Leaf. Illustrating special Zee section, compact assembly and $\frac{3}{8}$ in. double contact weathering.

(5) **Jamb of Sill Vent**—Section through outside frame, $\frac{3}{8}$ in. double contact weathering and sill ventilator side rail.

(6) **Sill**—Note design of frame section which permits easy and weathertight installation.

(7) and (8) **Locking Hardware**—Locking handles and strikes of forged bronze in Old English finish. Other finishes available when specified.

(9) **Vertical Meeting Rail** between swing leaves. Note heavy Tee section flush on inside with frame, compact assembly and $\frac{3}{8}$ in. double contact weathering.

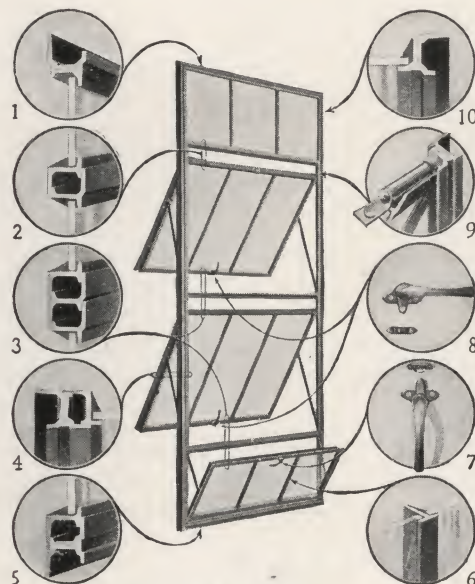
(10) **Extension Type Friction Hinge**, bronze bushed. Permits easy cleaning of the windows from the inside and positively holds the swing leaf in any desired position without requiring an adjuster.

(11) **Close-up Type Friction Hinge** for Transom; Butt Hinges are furnished as standard.

(12) **Bronze Push Arm** with latch for use with transom vents. Holds transom open in any desired position and may be operated with window pole.

SERIES 15C AND 15P

All sections are made of hot-rolled copper-bearing steel. Units are square and true, with a perfect $\frac{3}{8}$ in. flat double contact weathering maintained throughout between the sash and frame. All corners are electrically welded and ground smooth. Hardware is forged bronze and of modern artistic design.



Series 15P

CONSTRUCTION DETAILS

(1) **Head Section**—Extra heavy frame section.

(2) **Section Through Head of Vent**—With fixed sash above and ventilator below showing $\frac{3}{8}$ in. double contact weathering.

(3) **Section Through Meeting Rail**—Between two projected vents showing $\frac{3}{8}$ in. double contact weathering in each case.

(4) **Jamb Section Through Down and Out Vent**—Showing $\frac{3}{8}$ in. double contact weathering.

(5) **Section at Sill with Hopper Vent Above**—Showing frame and $\frac{3}{8}$ in. double contact weathering.

(6) **Cross Section Through Tee Muntin Bars**—Showing outside putty glazing with spring clips.

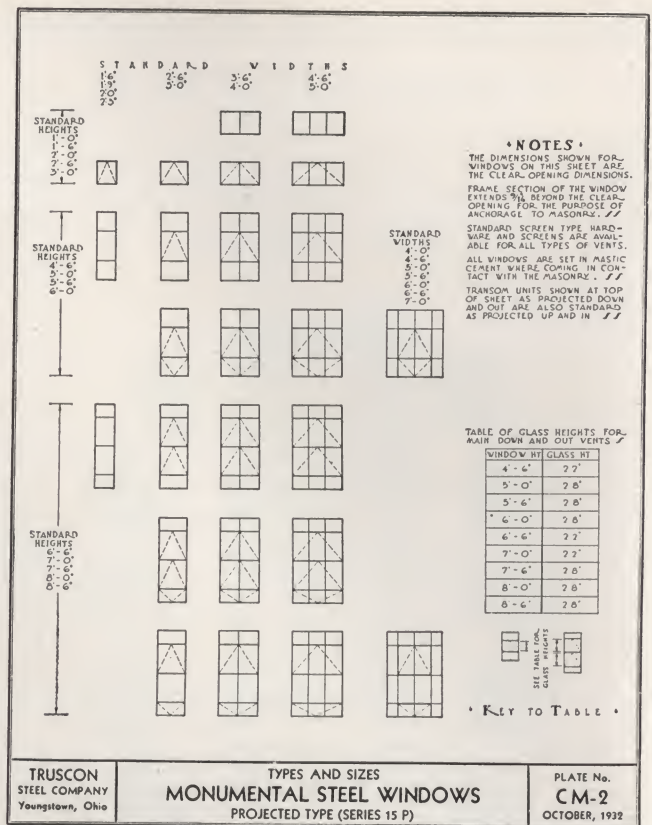
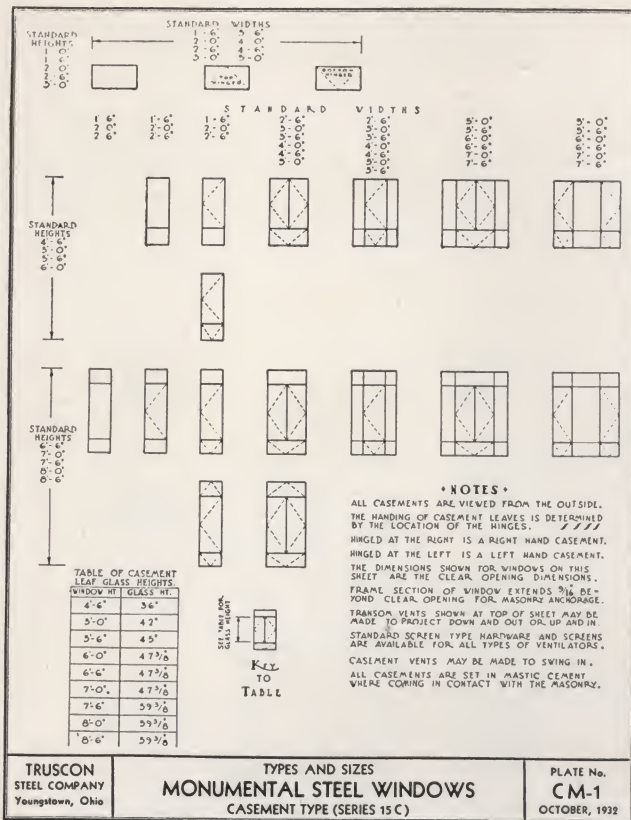
(7) and (8) **Locking Hardware**—Locking handles and strikes of forged bronze in Old English finish. Other finishes available when specified.

(9) **Sliding Pivot**—Showing vertical sliding brass friction shoe.

(10) **Jamb Section**—Note long outside frame leg which insures durable anchorage into building walls.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown, not exceeding 5 ft. 0 in. in width, either inside bead or outside putty glazed, provided glass lights do not exceed 125 square inches using standard muntin bar or 350 square inches using extra heavy muntin bar.



SPECIFICATIONS (SERIES 15C AND 15P WINDOWS)

(1) **General**—All window openings shown on the drawings, unless otherwise specified, shall be fitted with Truscon Monumental Windows, either casement type Series 15C or projected type Series 15P, as shown, all as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution will be permitted without the written approval of the architect.

(2) **Material**—Truscon specification, new billet, hot-rolled, copper-bearing steel shall be used in the manufacture of all members.

(3) **Construction**—All units shall be square and true and constructed of sections not less than 1 1/8 in. deep, and weighing not less than 4.26 lbs. per linear foot of frame and ventilator sections exclusive of glazing beads and sub-frames.

(a) The *Outside Frame* shall be an unequal leg section, designed for 5/8 in. anchorage on the outside leg and continuous from head to sill and jamb to jamb and shaped for double flat contact weathering not less than 3/8 in. between sash and frame. Each corner of sash and frames shall be electrically butt welded rigid and tight and ground smooth before assembly. The ventilators and frame shall be made perfectly straight and true to insure perfect weathering and ease of operation.

(b) *Muntins*, where required, shall be a specially designed "Tee" bar section and shall be continuous between rails and stiles. At intersections there shall be a mechanical joint rigidly interlocking the muntins flush with each other. Joints of muntins and frames, stiles and rails shall be tenoned, mortised and air-hammer riveted.

(c) All *Stiles, Rails, Frames and Muntins* shall be prepared for outside putty glazing with spring clips where muntin bars are used, and angle clips in units without muntin bars. (See note.)

(d) *Series 15C Side Hinged Swing Leaves* shall swing out unless otherwise specified and shall be equipped with Truscon design, friction type, bronze bushed hinges designed to hold swing leaf open in any desired position. Series 15C transoms shall be equipped with steel butt, bronze pin hinges and sill ventilators shall be of the projecting type opening up and inward. (See note.) A continuous drip shall be provided for all side hinged leaves.

(e) *Series 15P Ventilators* shall be of the projecting type opening down and outward or up and inward as specified. Each ventilator shall be balanced on two 7/8 x 1 in. high carbon steel supporting arms attached to frame and ventilator by special shoulder rivets having a bronze flange bushing. Each ventilator shall be equipped with vertical sliding brass friction shoe at each jamb.

(4) Hardware—

NON SCREEN TYPE

(a) All *Hardware* shall be forged bronze, Old English finish.

(b) For *Side Hinged Swing Leaves* up to and including 5 ft. in height, a bronze cam acting locking handle and bronze strike shall be furnished.

For *Side Hinged Swing Leaves* over 5 ft. in height or when center line of swing leaf is 6 ft. 3 in. or more from the floor, bronze double locking device and bronze strikes shall be furnished.

For *Top Hinged Transoms* a bronze push arm shall be furnished.

For *Double Vented Units* with clear opening (no meeting rail), bronze cremone bolt hardware shall be furnished.

(c) For *Projected Ventilators* a bronze cam acting locking handle and, where necessary, a bronze pole ring shall be furnished as standard. Where desired and specified, bronze spring latch, either pole or cord operated, shall be furnished.

SCREEN TYPE

(d) *Screen Type Hardware* shall be fully automatic and positive and shall control the swing leaf independently of the screen.

(e) Standard screen type hardware for *Side Hinged Swing Leaves* shall consist of Auto-Lock Underscreen Operator and concealed latch locking handle. Operator shall have a black lacquer finish case and solid bronze Old English finish bar. The locking handle shall be solid bronze Old English finish.

Where desired, *Artex Underscreen Operator* will be furnished in place of *Auto-Lock*, at a slight extra cost. *Artex Underscreen Operator* has a black lacquer finish case and Old English bronze finish handle.

(f) Standard screen type hardware for *top hung transom leaves* shall consist of heavy bronze Old English finish push arm operating through the frame or transom bar section.

(g) Standard screen type hardware for *down and outward projecting ventilators* shall consist of heavy bronze Old English finish push arm operating through the frame or intermediate bar sections.

Ventilators projecting up and inward do not require screen type hardware.

(5) **Painting**—Casements shall be given one prime coat of grey mineral paint at factory before shipment.

(6) **Glazing**—All casements shall be glazed on the outside with glazing clips (see note).

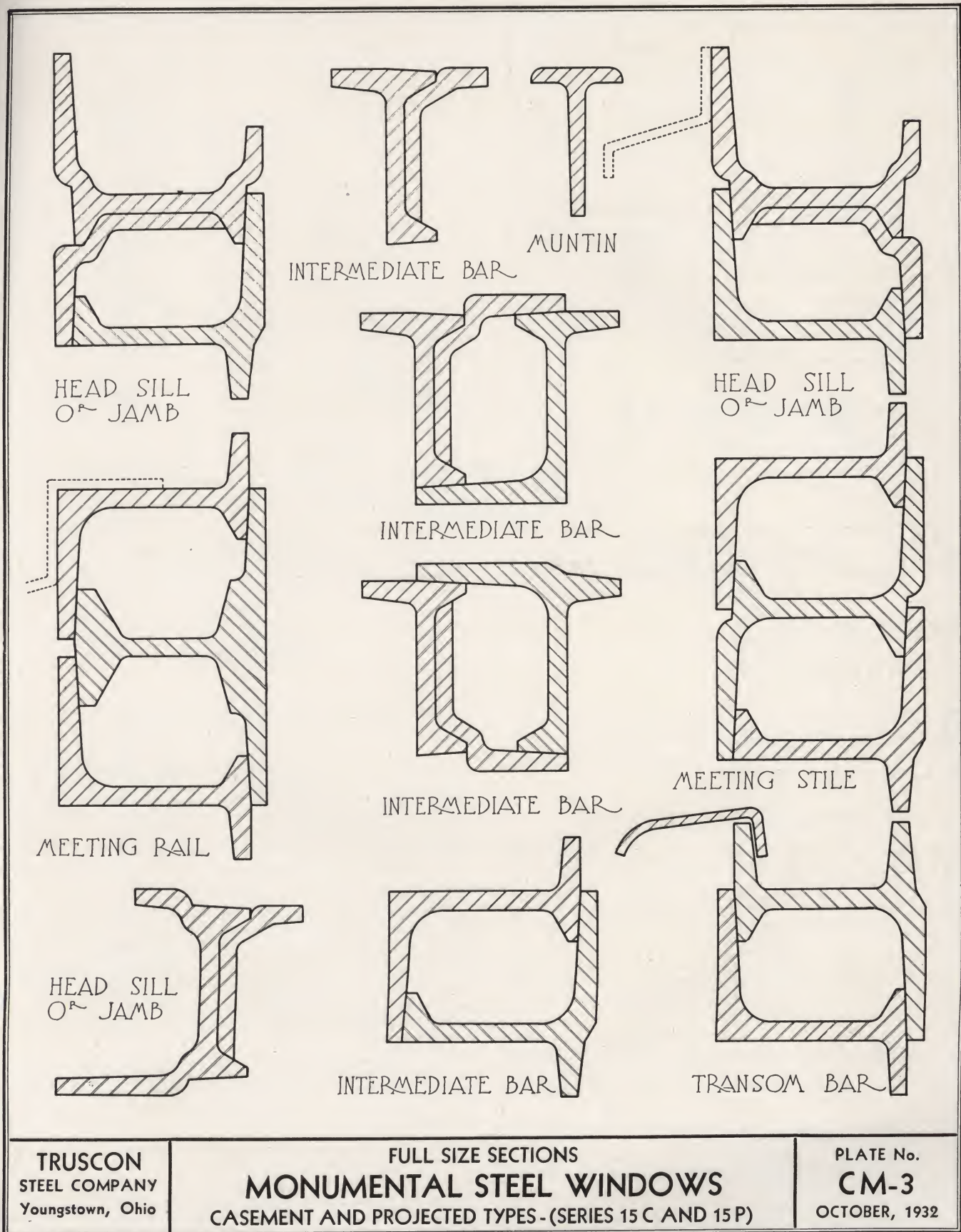
(7) **Erection**—(a) Each unit shall be set plumb and true in the opening, securely wedged and held in alignment during construction.

After windows have been placed in opening and before they are glazed, the ventilator shall be carefully adjusted.

(b) Non-staining mastic in sufficient quantity shall be used in setting and bedding frames where they come in contact with mullions or wall construction.

Notes: Windows may be inside bead glazed with solid section, hot-rolled glazing beads if desired and so specified. Series 15C transoms may be down and outward or up and inward projecting type or bottom hinged and Series 15C sill ventilators may be bottom hinged if desired and so specified.

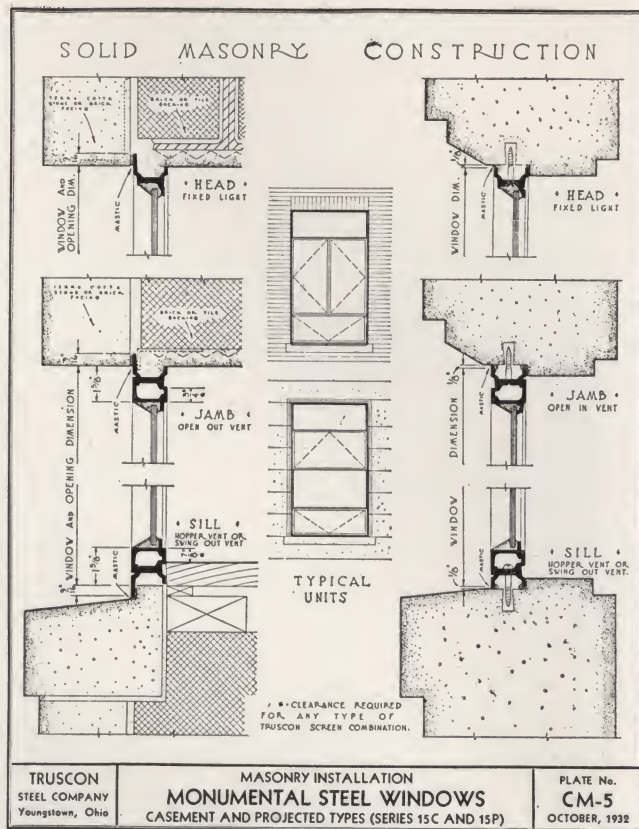
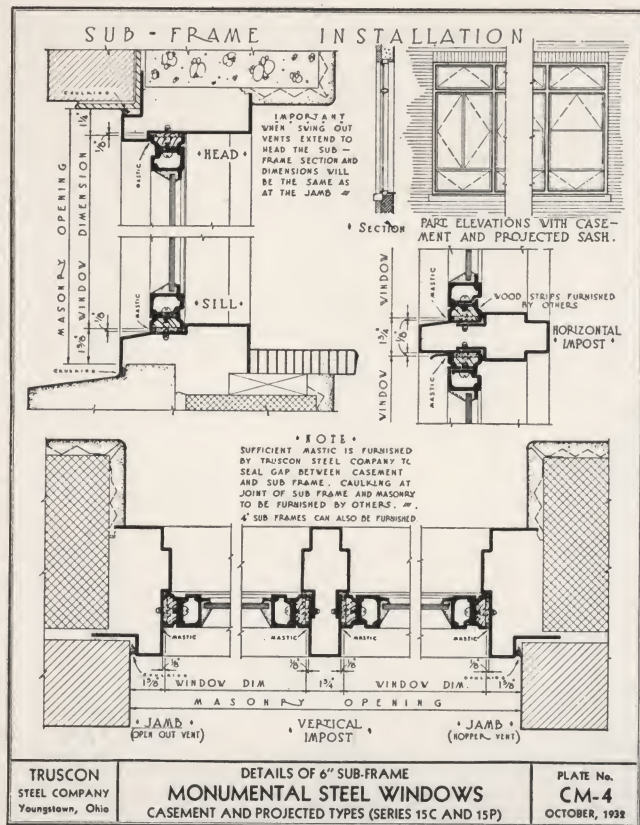
When specified, Series 15C Monumental Casements can be furnished to "open in."



TRUSCON
STEEL COMPANY
Youngstown, Ohio

FULL SIZE SECTIONS
MONUMENTAL STEEL WINDOWS
CASEMENT AND PROJECTED TYPES - (SERIES 15 C AND 15 P)

PLATE No.
CM-3
OCTOBER, 1932



PARAMOUNT CASEMENTS

WHERE architectural treatment and ventilation requires exceptionally large swing leaves, Paramount Casements, Series 25, will meet the most exacting architectural specifications.

CONDENSED SPECIFICATIONS

(1) **General**—All openings shall be equipped with Paramount Casement Windows as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio.

(2) **Construction**—(a) Windows shall be custom made and of type, size and design to swing either in or out, as shown on the drawing.

(b) **Major Members** shall be not less than 1½ in. in depth and shall be hot-rolled from copper-bearing steel. The combined weight of frame and swing leaf members shall be not less than 4 lbs. per linear foot.

(c) **All corners** of swing leaves and frames shall be mitered and electrically butt welded and all exposed surfaces ground smooth. Double contact of not less than ⅜ in. shall be provided for weathering on all windows where swing leaves contact frame members.

(3) **Glazing**—Windows shall be furnished with glazing clips for outside putty glazing. When otherwise specified, windows shall be fitted with a solid moulded steel glazing stop for inside glazing. Glazing stops shall be carefully fitted to each light and attached with bronze screws.

(4) **Hardware**—(a) **Unattached Hardware** shall be solid bronze, Old English finish of Truscon standard design. Standard screen type hardware shall be furnished and windows prepared

SERIES 25

for same when so specified (illustrated on page 28). Unattached hardware shall be packed separately and shipped with windows.

(b) **Swing Leaves** shall be provided with standard extension cleaning hinges, either friction or free swinging types; or with butt hinges, at the option of the architect. All hinges are so designed as to have 100% bronze to steel contact on all pivot points. Windows shall be provided for friction or stay-bar adjuster where free swinging hinges are specified.

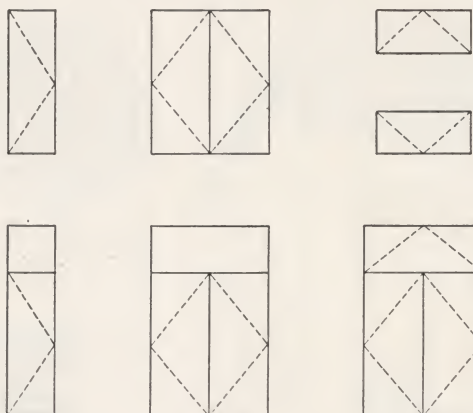
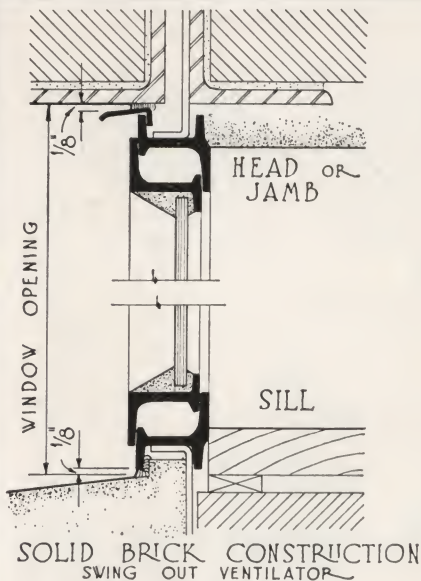
(5) **Painting**—Windows after fabrication shall be given one protective coat of standard Truscon paint.

(6) **Erection**—All windows shall be set plumb and true in their respective openings and properly adjusted. All contacts at mullion assemblies and where window frames meet collateral construction shall be made weathertight with Truscon non-staining mastic cement. All hardware shall be applied in accordance with manufacturer's instructions. (It is recommended that the manufacturer shall erect and adjust the windows. The Erection Division of the TRUSCON STEEL COMPANY will contract to furnish this service.)

Frame members of windows shall be so designed that they can be readily installed in Truscon standard design steel sub frames erected by others. Frame members shall also be prepared to accept standard fins so that windows may be built-in with the construction.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified on units not exceeding 5 ft. 0 in. in width by 10 ft. 0 in. in height, inside head or outside putty glazed, provided glass lights do not exceed 125 square inches using standard muntin bar or 350 square inches using extra heavy muntin bar.



• TYPICAL • TYPES •

ALL CASEMENT VENTS ARE LIMITED IN WIDTH TO 3'-0" AND IN HEIGHT TO 7'-6".

VENTS MAY SWING IN OR OUT.

INSIDE BEAD GLAZING MAY ALSO BE FURNISHED. ♦♦

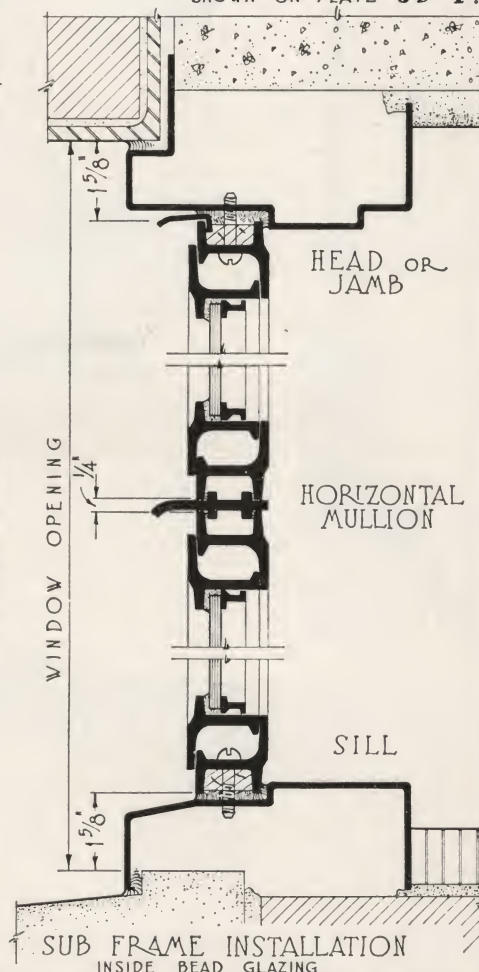
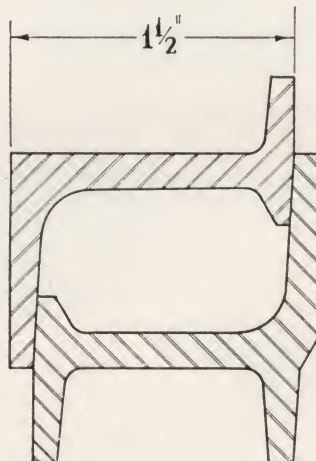
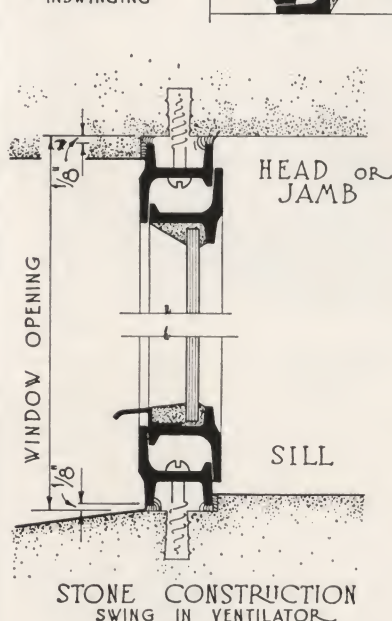
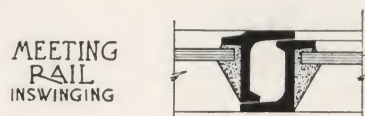
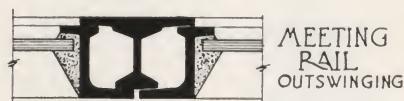
TRANSOM UNITS MAY BE MADE TOP HINGED TO OPEN OUT, BOTTOM HINGED TO OPEN IN, PROJECTED DOWN AND OUT, OR UP AND IN. ♦♦

ALL CASEMENTS TO BE SET IN MASTIC CEMENT WHERE COMING IN CONTACT WITH MASONRY SUB-FRAMES OR AT MULLIONS. ♦♦

EXTENSION FRICTION HINGES FOR OUTSWING VENTS AND STEEL BUTT HINGES FOR INSWING VENTS ARE STANDARD.

CLOSE UP FRICTION HINGES OR BRONZE BUTTS MAY BE FURNISHED. ♦♦

SCREEN DETAILS SIMILAR TO ARCHITECTURAL CASEMENTS SHOWN ON PLATE SD-1.

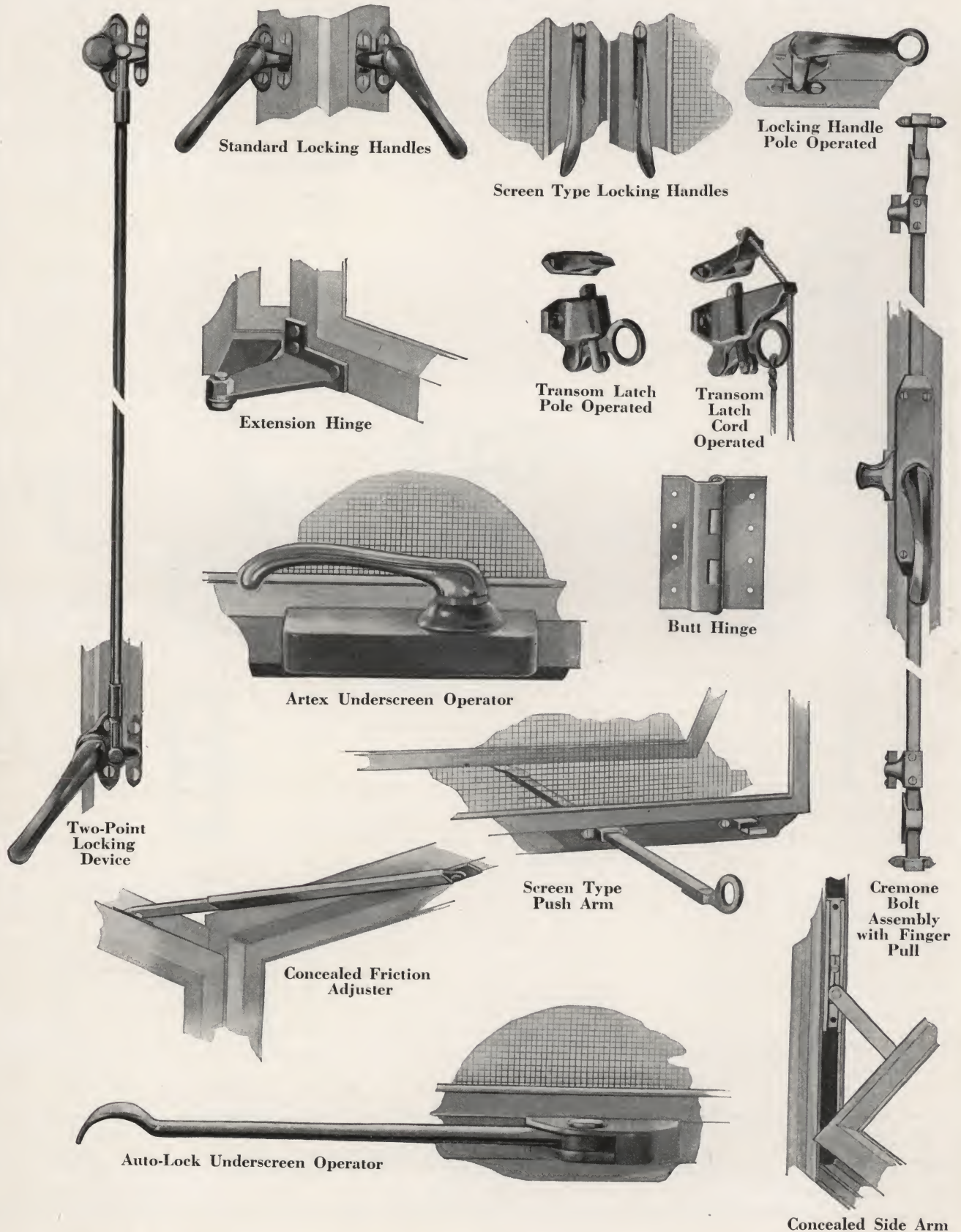


TRUSCON
STEEL COMPANY
Youngstown, Ohio

STANDARD DETAILS
PARAMOUNT STEEL CASEMENTS
SERIES 25

PLATE No.
CP-1
OCTOBER, 1932

HARDWARE FOR ARCHITECTURAL AND PARAMOUNT CASEMENTS
AND MONUMENTAL WINDOWS—*Series 15, 15C, 15P and 25*



PROJECTED WINDOWS

DESIGNED for appearance as well as practicability. They are furnished in a wide variety of types and sizes, enabling the architect to choose the exact window that will best suit his needs.

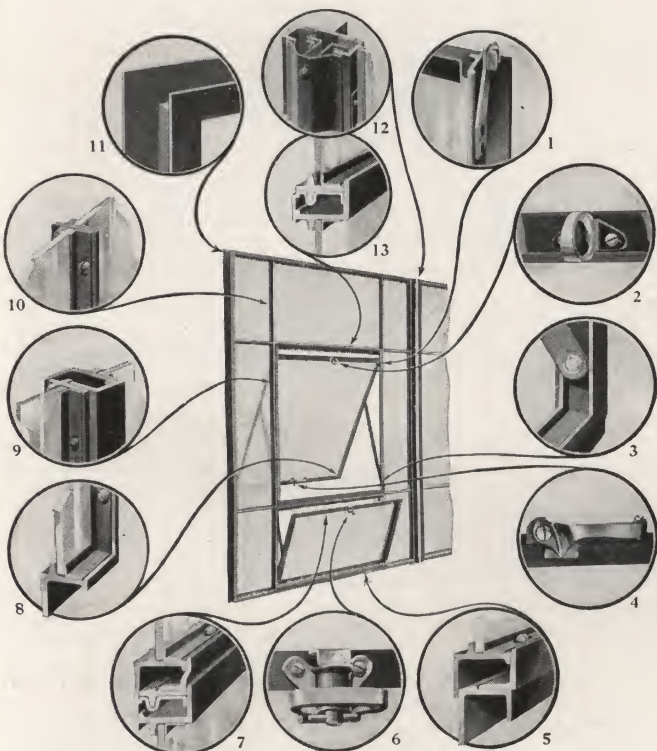
By means of an outside frame that is formed of a heavy channel, these windows emphasize the massiveness that is basic in the design of so many modern buildings. Their slender steel muntin bars impart to projected windows a delicate beauty without sacrificing strength or daylighting.

Windows can be furnished for inside glazing angles (which is standard) or for outside glazing with putty making the use of glazing angles not necessary.

Ventilation is entirely controllable, as the ventilators may be opened to any desired degree. These windows, obtainable with either in-swinging or out-swinging ventilators, admit plenty of air and deflect it so as to protect the occupants of the room from draughts.

Projecting ventilators permit easy cleaning from the inside.

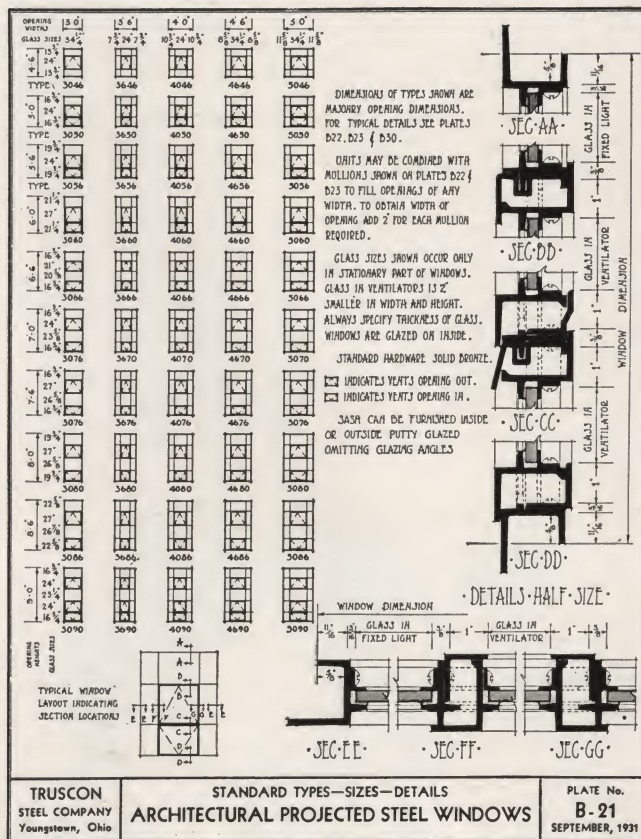
Weathertightness is assured by the rigid construction of the window and the Truscon double contact weathering.



CONSTRUCTION DETAILS

- (1) Forged Brass Sliding Pivot Friction Shoe—Shoe mounted on $\frac{1}{8}$ in. flat cadmium plated spring steel $1 \times 4\frac{1}{2}$ in. securely riveted to stile of vent.
- (2) Bronze Pole Hook Ring—Allowing operation of out-swinging ventilators with window pole.
- (3) Brass Bushed Pivoted Arms— $\frac{3}{8} \times 1$ in. supporting arms for ventilator are concealed when ventilator is closed.
- (4) Locking Handle for Outward Projecting Vents—Artistically designed handle and strike plate of solid bronze close and lock the window securely.
- (5) Weathering Section at Sill—Weathertightness at sill of ventilator is assured when window is closed by large double contact at this point.
- (6) Automatic Spring Latch for Inward Projecting Vents—Solid bronze latch is attached to ventilator, for operation by hand or with pole, as required.
- (7) Weathering Section at Meeting Rail—Proper weathering contact through sill of out-swinging and head of in-swinging ventilators at all times when vent is closed.
- (8) Ventilator Frame—Rigid angle section, mortised and tenoned, electrically welded.
- (9) Weathering Section at Jamb—Double contact at jamb, sills and head of ventilator, completes proper weathering for entire ventilator.
- (10) Metal Glazing Angles—Glass is bedded in Truscon Steel Window putty and held in place with glazing angles attached to sash with brass bolts.
- (11) Corners—Heavy frame members of unequal leg channels are mortised and tenoned, electrically welded.
- (12) Vertical Mullions—Exterior Tee Bar to give necessary rigidity, with pressed metal interior cover to give pleasing appearance.
- (13) Weathering Section at Head—Head of out-swinging ventilator provides contact at two points.

ARCHITECTURAL TYPE



CONDENSED SPECIFICATIONS

(1) **General**—All windows so indicated on the plans and elevations and called for in these specifications shall be the Architectural Projected Type as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio.

(2) **Construction**—All joints shall be mortise and tenoned, and air-hammer riveted.

- (a) Corners of all ventilators and sash shall be welded.
- (b) The intersection of horizontal and vertical muntins shall have a dovetail miter, rigidly interlocking the bars.
- (c) No excess metal or projecting surfaces shall be permitted where muntin bars intersect.
- (d) Muntin bars except where ventilators occur shall be continuous from head to sill and from jamb to jamb.
- (e) Ventilators shall have double contact weathering on all four sides.

(f) The sliding pivots shall be constructed of forged brass.
 (g) The outside section of the window shall be a heavy, solid rolled copper-bearing steel channel (210-A or 210-B section).

(h) The side of the window frame shall act as a guide for the sliding pivot with no recess or slot.

(j) Uniform tension to hold ventilators in any position by the use of springs applied between sliding pivot and ventilator.
 (k) There shall be two heavy supporting arms attached to the ventilator and frame designed to be concealed when ventilator is closed. The rivet holes in supporting arms shall have brass bushing.

(1) Ventilators Projected Out or In shall have no part of ventilator projecting beyond the normal plane of the windows.

(3) **Hardware**—Shall be bronze throughout.

(4) **Painting**—All windows shall be given one coat of protective paint before shipment.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown and special sizes up to 7 ft. width by 12 ft. in height. Windows must be inside angle glazed. Maximum glass size is 350 square inches.

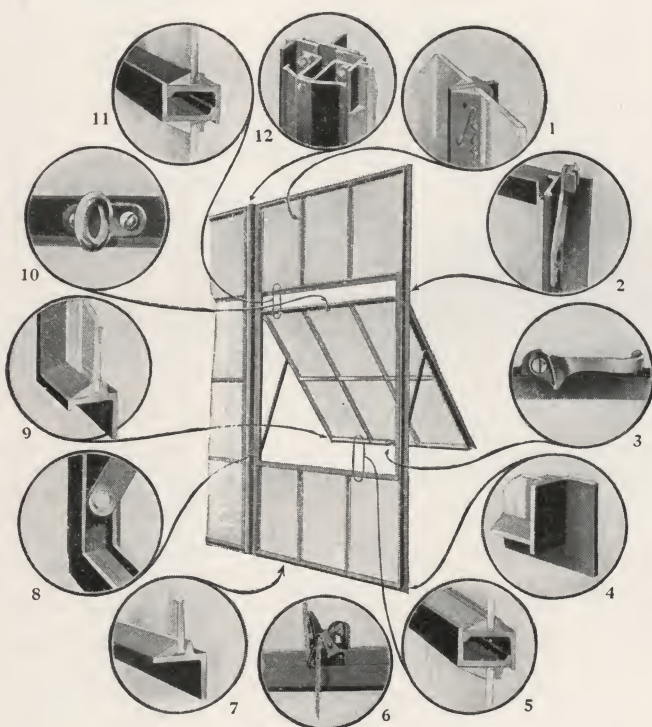
PROJECTED WINDOWS

WHERE neat design and economy are the keynote of the construction, architects will appreciate the quality, appearance, performance and low cost of these windows.

They are widely used in buildings where low cost is essential. The projected feature is especially valuable when ventilation depends upon the natural clearing off of vapor, smoke and stale air. The tilted ventilator acts as a deflector of the elements and can be kept open in all kinds of weather. Direct drafts are eliminated and a continuous change of air is obtained. Projecting ventilators make possible ready cleaning from the inside.

Because of the similarity between the appearance of the Commercial Projected and Pivoted Windows, the Projected Windows can be used in the office section of an industrial plant with complete conformity to the general design.

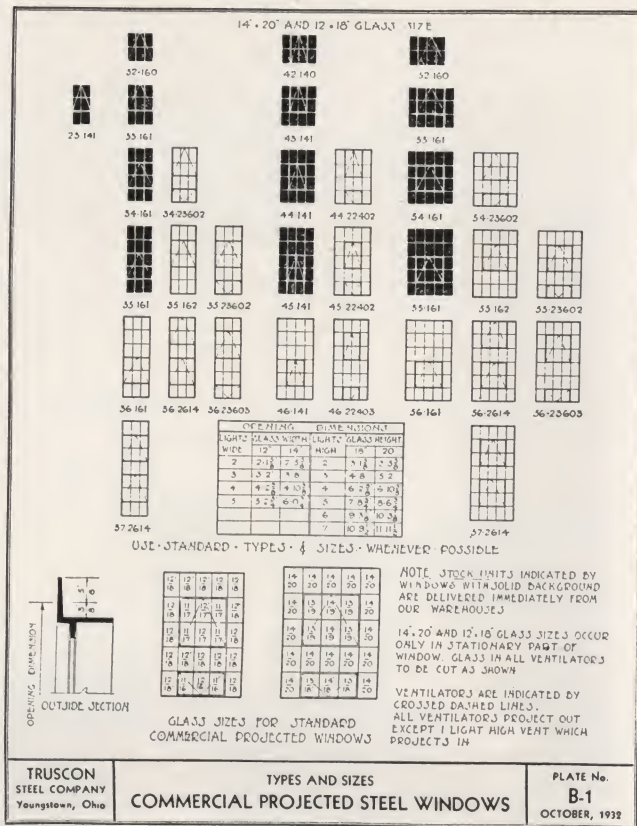
Thirty-one standard types of Commercial Projected Window, as shown in the plate B-1 on this page, are available in either 12x18 in. or 14x20 in. glass size, many of which are carried in warehouse stocks.



CONSTRUCTION DETAILS

- (1) **Glazing**—Glass is bed and face puttied and held in place with clips; staggered holes and flexible clips allow various thicknesses of glass.
- (2) **Forged Brass Sliding Pivot Friction Shoe**—Glazing ledge of sash section acts as guide, eliminating recess for collection of dirt and ice.
- (3) **Locking Handle**—For outward projecting vents, of malleable iron, cadmium plated; when inward projecting vents are used malleable automatic spring latch is furnished.
- (4) **Corner Construction**—Heavy frame angle members are mortised, tenoned and air-hammered.
- (5) **Weathering at Sill**—Double contact weathering makes tight fit and assures weather-tightness.
- (6) **Automatic Chain Latch**—Automatic kick-out allows operation by chain when ventilator is out of reach from floor.
- (7) **Frame**—Heavy angle section at head, sill and jambs, mortised and tenoned.
- (8) **Supporting Arms**—Heavy pivots are brass bushed. The 1/2-in. supporting arms for ventilator are concealed when ventilator is closed.
- (9) **Ventilator Frame Corner**—Heavy, rigid angle section, mortised and tenoned and air-hammer riveted.
- (10) **Pole Hook Ring**—To be used with window pole.
- (11) **Weathering at Head**—Provides double contact at two points.
- (12) **Vertical Mullion**—Exterior Tee Bar to give necessary rigidity. Pressed metal cover on the inside to give pleasing appearance, will be furnished if specified.

COMMERCIAL TYPE



CONDENSED SPECIFICATIONS

- (1) **General**—All windows so indicated on the plans and elevations and called for in these specifications shall be the Commercial Projected type as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio.
- (2) **Construction**—(a) All joints shall be mortised and tenoned and air-hammer riveted.
 - (b) The intersection of *Horizontal and Vertical Muntins* shall have a dovetail mitre, rigidly interlocking the bars.
 - (c) No *Excess Metal* or projecting surfaces shall be permitted where muntin bars intersect.
 - (d) *Muntin Bars*, except where ventilators occur, shall be continuous from head to sill and from jamb to jamb.
 - (e) *Ventilators* shall have double contact weathering on all four sides.
 - (f) The *Sliding Pivot* shall be constructed of forged brass.
 - (g) The side of the window frame shall act as a *Guide* for the sliding pivot, and shall be constructed without recess or slot.
 - (h) *Uniform Tension* to hold ventilator in any desired position shall be gained by the use of a spring applied between sliding pivot and ventilator.
 - (i) There shall be two heavy *Supporting Arms* attached to the ventilator and frame, designed to be concealed when ventilator is closed. The rivet holes in supporting arms shall have brass bushings.
 - (k) *Ventilators Projected Out*, when open, shall have no part of the ventilator projecting inside the normal plane of the window.
 - (l) *Ventilators Projected In* shall not project outside the normal plane of the window.
- (3) **Hardware**—Shall be malleable iron, cadmium plated.

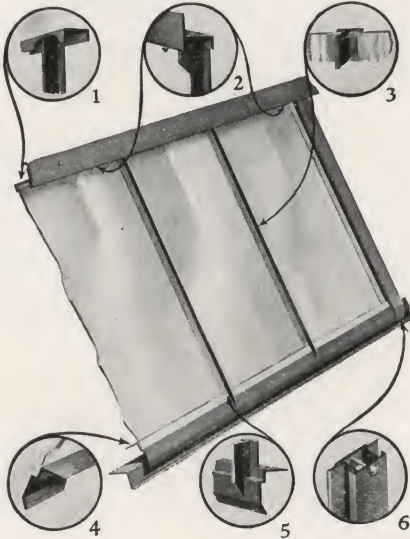
Note: Bronze hardware can be furnished if required.
- (4) **Painting**—All windows shall be given one coat of Truscon Protective Paint before shipment.

UNDERWRITERS' LABEL

Underwriters' label of approval may be specified for all standard sizes shown and special sizes up to 7 ft. 0 in. in width by 12 ft. 0 in. in height, must be inside angle glazed. Maximum glass size is 350 square inches.

CONTINUOUS WINDOWS

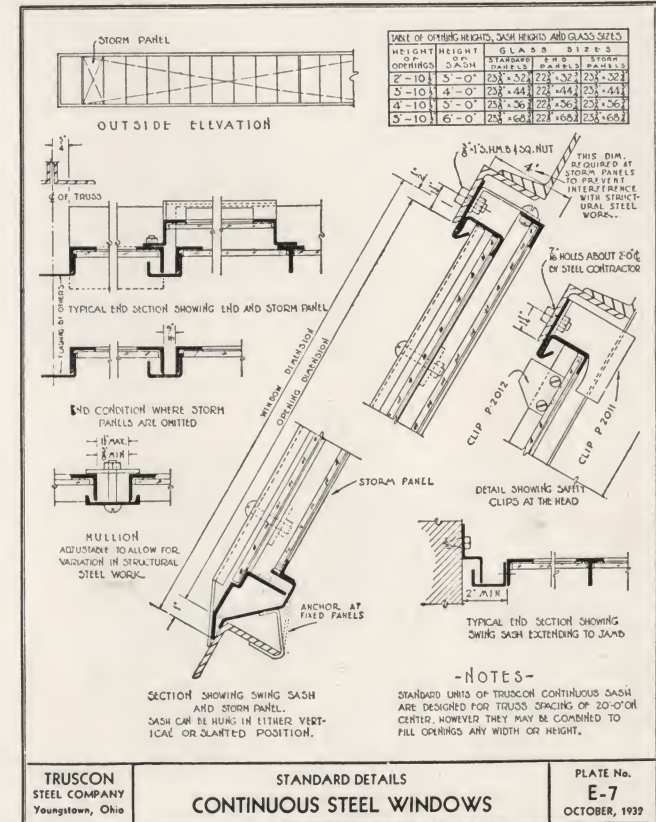
IDEALLY suited for use in industrial plants where the nature of the factory work requires frequent and rapid ventilation of the building. They are also most practical for any buildings having monitors or saw-tooth faces, or where banks of windows reach considerable heights, necessitating remote control for operation. Particularly valuable where large areas are enclosed which cannot be satisfactorily lighted through the side walls.



CONSTRUCTION DETAILS

- (1) Welded Mortise and Tenon Joint—Prevents twisting.
- (2) Hinge Member—Forms continuous bearing giving perfect weathering.
- (3) Glazing Clips—Of heavy brass on vertical muntin bars.
- (4) Wide Flange—For the attachment of mechanical operator.
- (5) Mortise and Tenon Joint—Showing welding.
- (6) Vertical Expansion Mullion.

PRESSED STEEL FRAMES—Particularly well adapted for use in modern structures where the effect of massive strength must be accurately met. Made of heavy gauge copper-bearing steel, absolutely uniform and economical. Details furnished on request.



MECHANICAL OPERATORS

FOR the operation of Continuous, Pivoted, Projected and Prison Type Steel Windows are furnished in either hand or motor operated units as hereinafter described.

TENSION TYPE OPERATORS

Type P-57—Hand operation is most frequently used for runs at top or bottom hung Continuous Windows and Pivoted Steel Windows. This operator provides fast and smooth operation. The operator may be motorized if desired and will handle 185 ft. of Continuous Windows with a maximum height of 6 ft. or ventilators in 300 ft. of Pivoted Windows.

Type CP-69—This operator is designed to operate Continuous Window runs up to 375 ft. in length with a maximum height of 6 ft. It can only be used with a motor.

Type CP-83—This operator is designed to operate Continuous Window runs up to 700 ft. in length with a maximum height of 6 ft. It can only be used with a motor.

TORSION OPERATORS

Type P-515—Hand operation is commonly used on Pivoted Windows controlled either by means of hand chain or vertical

shaft and miter gear. When torsion type arms are used, runs may be operated up to 100 ft. in length. When rack and pinion type arms are used, runs may be operated up to 200 ft.

Projected ventilators can also be operated up to a limit of 60 ft. in length when torsion arms are used and 100 ft. in length when rack and pinion arms are used. In either case, two arms must be furnished per vent.

Type P-289—With the use of Torsion operators it is only possible to motorize the rack and pinion type using the P-289 power. This type of operator will operate ventilators in 300 ft. of Pivoted Windows.

SCREW TYPE OPERATORS

Type CP-259—This operator is designed for operation of Continuous Windows in power houses where one row of windows is located above the other and may be used for operating one or more bays. This operator is screw type and in all cases must be motorized.

Type CP-419—This operator is designed especially to operate Prison Type Windows and is a vertical screw design, and operated by means of crank handle attached to the screw power.

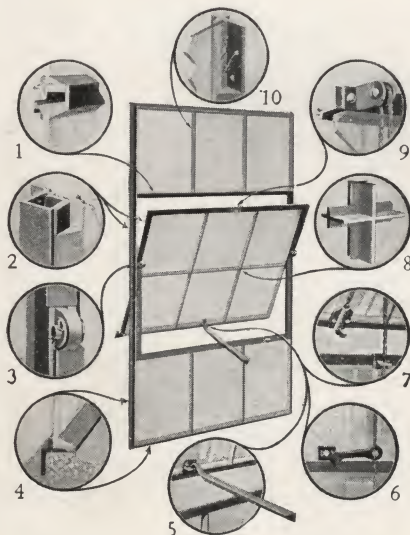
PIVOTED WINDOWS

ADAPTABLE to all types of industrial and manufacturing buildings including warehouse, factory and storage buildings, garages, filling stations, etc. and especially desirable when a great deal of light is needed. The slender but strong and rigid steel muntin bars admit the maximum of light to the interior. They are permanent, fireproof, never stick, shrink or warp and open or close easily regardless of climatic conditions.

Pivoted Windows are made of heavy, hot-rolled rust-resisting, steel sections. The outside section is of angle shape to allow $\frac{5}{8}$ in. anchorage at the masonry or mullion connection. The intersection of the horizontal and vertical muntin is a dovetail mitre rigidly interlocking the bars. Double contact weathering is provided on all four sides of ventilator.

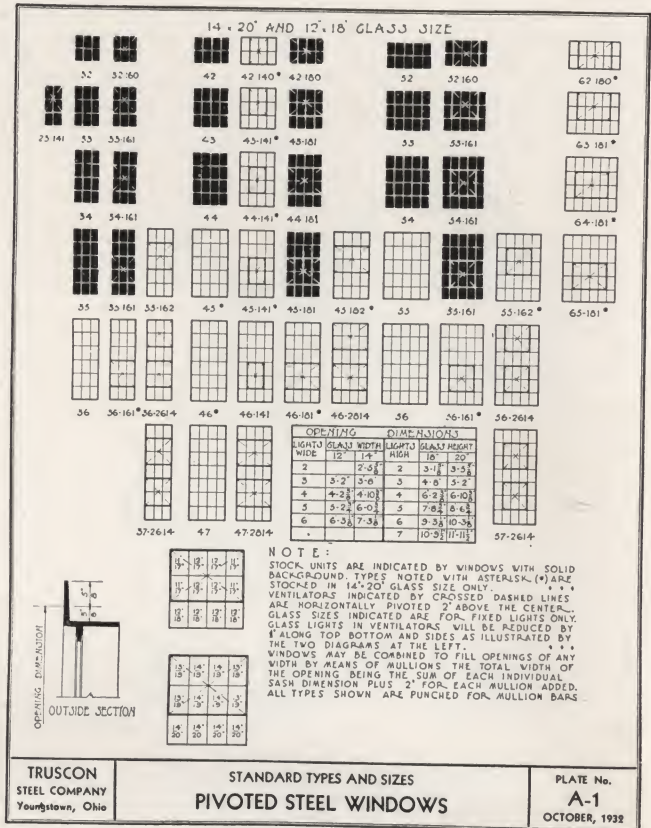
Glass size in stationary portion of sash is 12x18 in., or 14x20 in. All lights at top and bottom of ventilator are 1 in. shorter and all lights at sides of ventilators are 1 in. narrower than in stationary portion of windows. Twenty-three types of sash illustrated in black in diagram are available for quick delivery from stocks.

Truscon Pivoted Steel Windows are made in a wide range of sizes to fill practically all building needs. They can be combined with standard mullions to fit almost any size of window opening. All windows are given one dip coat of protective paint at factory.



CONSTRUCTION DETAILS

- (1) Double Contact Weathering at Head. (Detail shown is for a Pivoted Window with sidelights.)
- (2) Double Contact Weathering at Jamb.
- (3) Solid Steel Pivot with Removable Pin—Assures easy operation and durability.
- (4) Heavy Angle Section at Sill and Jamb—Provides positive anchorage in masonry or mullion connections.
- (5) Cam Acting Push Bar—Notched to engage edge of weathering member at bottom of ventilator and hold it open at any desired angle. The ventilator is securely locked by folding push bar back against sash and engaging in the cleat.
- (6) Gravity Cam Latch and Chain—Tapped to bracket at sill of ventilator and securely held with a locking nut. A pull of the chain releases the cam latch and opens ventilator.
- (7) Spring Latch and Chain—For use when ventilator cannot be reached from floor.
- (8) Dovetail Miter Joints at Muntin Intersections—Joints are skillfully fitted together and assure great strength and rigidity.
- (9) Roller Bracket at Head of Ventilator—Used with chain operators.
- (10) Spring Steel Wire Glazing Clips.



CONDENSED SPECIFICATIONS

- (1) General—All windows so indicated on the plans and elevations and called for in these specifications shall be the Horizontally Pivoted type as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio.
- (2) Construction—(a) All members shall be constructed from Truscon specification, hot-rolled, special billet steel.
(b) All joints shall be mortise and tenon, and air-hammer riveted.
(c) Top and bottom rails of ventilators shall be cambered in shop before being fitted to windows.
- (3) Mullions—(a) Where two or more window units, less than 6 ft. 3 in. in height, are used in the same opening, they shall be connected with Truscon Standard Plate Mullions (Type T-1).
(b) For window units over 6 ft. 3 in. high, and up to and including 10 ft. 9½ in. high, Truscon Standard T-Bar mullions (Type T-2) shall be used.
(c) For all window openings over 10 ft. 9½ in. in height, Truscon Standard Double T-Bar Mullions (Type T-3) shall be used.
- (4) Hardware—All ventilators shall be equipped with either push bar, cam latch or spring latch and chain, as marked on drawings; all iron and steel hardware to be cadmium plated before shipment.
- (5) Mechanical Operator—All runs of ventilators, shown on drawings as "mechanically controlled," shall be equipped with torsion or other approved type of operator, as manufactured by the TRUSCON STEEL COMPANY.
- (6) Painting—All window units shall be given a dip coat of protective paint before shipment.
- (7) Glazing—All standard windows shall be glazed on the inside and glass shall be held in place by Truscon steel wire glazing clips.

UNDERWRITERS' LABEL

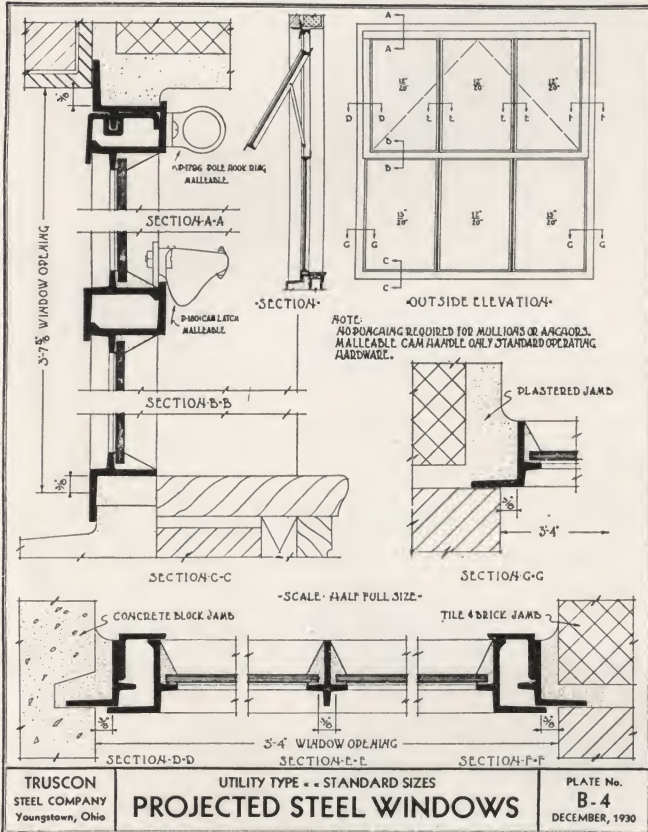
Underwriters' label of approval may be specified for all standard sizes shown and special sizes up to 7 ft. 0 in. in width by 12 ft. 0 in. in height, must be inside angle glazed. Maximum glass size is 350 square inches.

UTILITY WINDOWS



TRUSCON Utility Steel Windows are ideal for use in buildings such as garages, filling stations, stores, shops, basements, area-ways, etc. The ventilator is a balanced projecting type which in opening swings down and out leaving the interior entirely unobstructed.

Utility Steel Windows are furnished in only one size—3 ft. 4 in. wide by 3 ft. 7 $\frac{3}{8}$ in. high. Glass size in fixed portion of sash is 13 in. x 20 in. in the two outside lights and 12x20 in. in center fixed light. The glass size of lights in the ventilator is 12 in. x 20 in.



LINTELS PRESSED STEEL

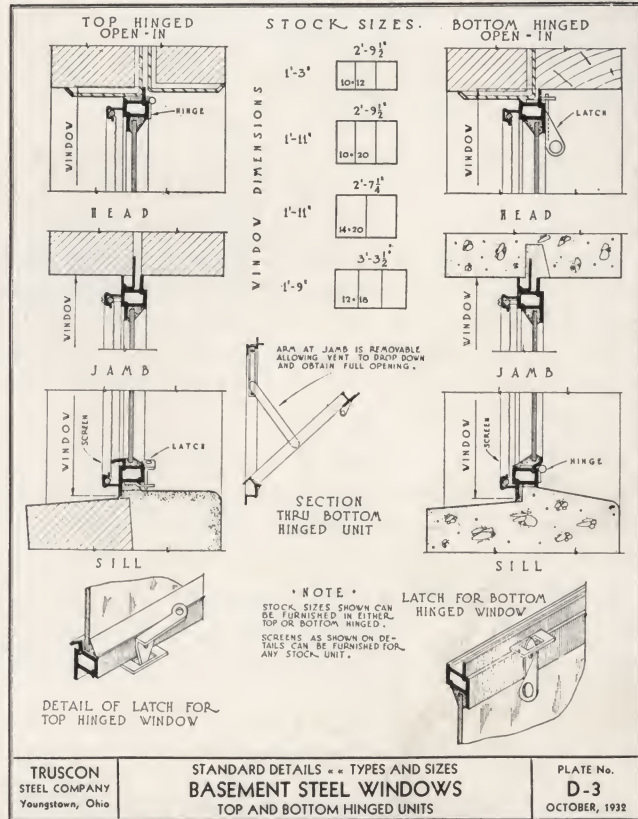
THE turned edges provide a proper mortar bed, and cross ribs placed at proper intervals give the maximum degree of rigidity to the lintel and ample support to the masonry above it.

3 $\frac{1}{2}$ x3 $\frac{1}{2}$ in. x 11 gauge, weight 2.7 lb. per lin. ft.
Standard lengths: 2 ft. 6 in., 3 ft., 3 ft. 6 in., 4 ft., 4 ft. 6 in.
4x4 in. x 9 gauge, weight 3.90 lb. per lin. ft.
Standard lengths: 5 ft., 5 ft. 6 in., 6 ft., 6 ft. 6 in., 7 ft.



BASEMENT WINDOWS

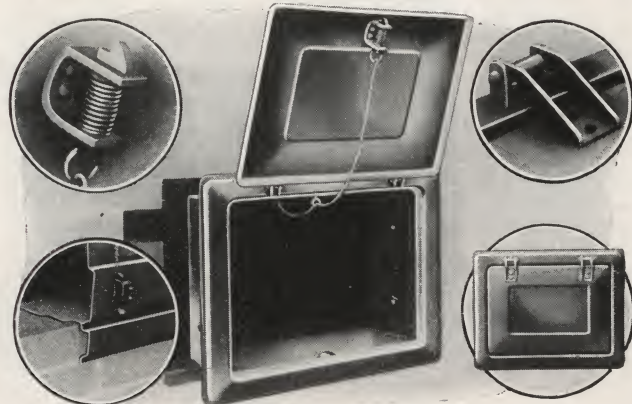
BASEMENT Windows are made either with the hinge at the top or at the bottom, both types having the same sizes and both opening in. The bottom-hinged window has an arm to limit the opening. They are furnished complete with hardware. Steel frame screens with accessories for attachment are available.



COAL CHUTES PRESSED STEEL

WEATHERTIGHT and fool-proof. The door and frame design develops maximum strength while keeping the weight of the unit to a minimum. The entire frame is electrically welded into one unit.

Two Standard Sizes—Frame, 27x21 $\frac{1}{4}$ in. Door opening, 22 $\frac{1}{2}$ x16 $\frac{3}{4}$ in. Depths, 8 or 12 in. Weights, 33 or 39 lbs.



INDUSTRIAL DOORS AND FRAMES

SERIES 31 SWING TYPE

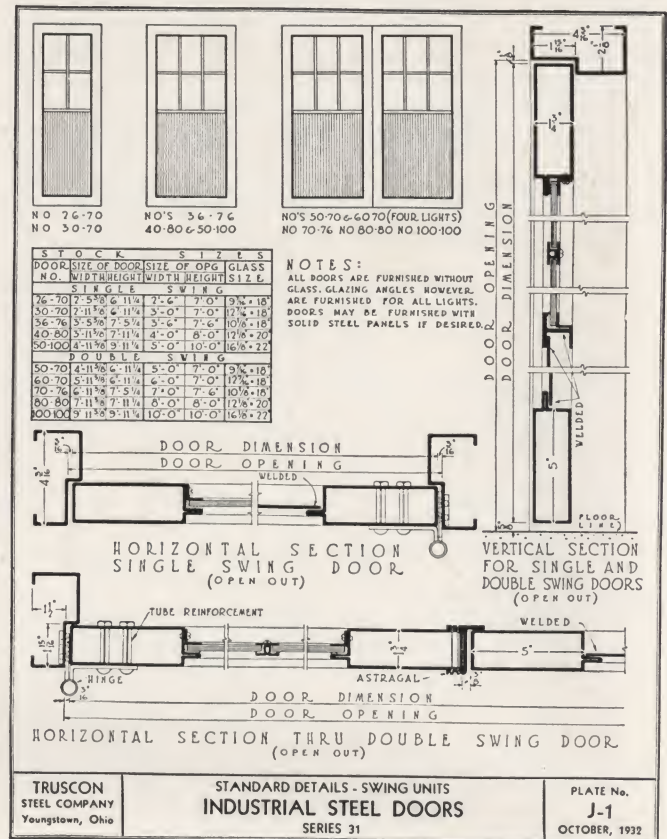
ADAPTABLE for use in basements, rear entrances, boiler rooms, fire exits, elevators and similar places in residences, hotels, apartments, schools, churches, institutions, shops, warehouses, filling stations, stores and similar applications.

Industrial Doors are furnished in various sizes for swing or slide installations and meet most practical conditions. Single doors fill openings from 2 ft. 6 in. x 7 ft. 0 in. to 5 ft. 0 in. x 10 ft. 0 in. in size and double doors from 5 ft. 0 in. x 7 ft. 0 in. to 10 ft. 0 in. x 10 ft. 0 in.

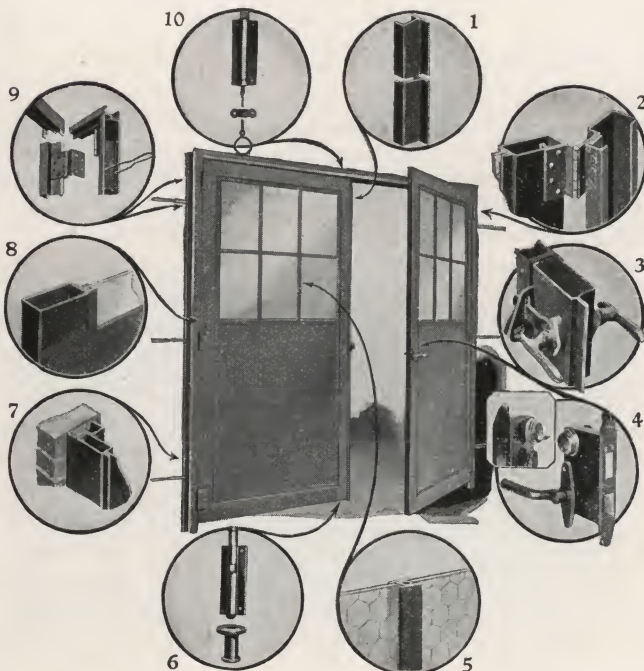
Stiles and rails of Industrial Doors are of copper-bearing steel, heavy tubular construction, electro-galvanized. All corners are carefully fitted and welded solidly. The large size of the tube, 1 3/4 x 5 in., provides an ideal condition for welding. There is practically 14 inches of weld at each corner.

Standard Pressed Steel Door Frames—For Swing Type Doors are made of copper-bearing steel electro-galvanized. They are heavily reinforced at corners and at hinges and are prepared for standard hardware.

Regularly furnished with masonry anchors so they can be erected as the walls are built. Frames will also be furnished with provisions for expansion bolts if so specified.



[SPECIFICATIONS ON PAGE 35]



CONSTRUCTION DETAILS

- (1) Astragal—Hot rolled steel, rigidly attached to left hand leaf.
- (2) Off Set Hinges—Extra heavy duty steel template hinges—three attached for each swinging leaf. Frame heavily reinforced for hinges.
- (3) Lever Latch—Heavy and serviceable—equipped with pad-lock brackets and neat lever handles.
- (4) Cylinder Lock—Two cylinder spring latch and dead bolt with lever handles.
- (5) Muntin Bar—Showing method of glazing. All muntins are solidly welded direct to door rail.
- (6) Foot Bolt—Automatic, furnished with all double swing doors, Series 31.
- (7) Pressed Steel Frame—Gives a more finished appearance than structural frames. Fastened in masonry by means of anchors attached to frame.
- (8) Sash—Showing method of glazing and muntin bar attached directly to door rail. Neat paneling effect obtained by this type of construction.
- (9) Anchors and Reinforcements—Showing method of simple field assembly of pressed steel frames. Anchors always furnished.
- (10) Chain Bolt—For inside locking at top of left hand leaf of all double swing doors.

INDUSTRIAL DOORS

SPECIFICATIONS

(1) **General**—All doors shown on drawings and marked Industrial Steel Doors, shall be of the type as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—(a) The stiles, top rail and bottom rail of the Industrial Steel Door, Series 31, shall be constructed of 5x1 3/4 in. No. 14 gauge pressed electro-galvanized, copper-bearing steel tube.

(b) Sash panel shall be an integral part of the door leaf securely welded to the door rails.

(c) The steel panels shall be constructed from cold-rolled copper-bearing sheets full pickled, re-annealed and patent leveled.

(3) **Construction**—(a) The corners shall be of welded construction with all joints face welded and ground smooth.

(b) The lower portion of the door shall be equipped with steel panels electrically spot-welded to the stiles and rails and shall not be less than No. 18 gauge in thickness.

(c) The upper portion of the door shall be fitted with a sash panel, all members of which shall be welded in place. The glass shall be held in place with putty and glazing angles.

(4) **Hardware**—(a) Sliding leaves shall be hung from (4) four wheel roller-bearing trolleys and shall be provided with guides, handles, stops and hasp staples as shown on the drawings.

(b) Each swinging leaf shall be equipped with three (3) heavy steel half surface template butt hinges.

(c) All swing doors shall be equipped with Truscon standard mortise cylinder lock with solid bronze face, or lever latch and padlock brackets. Cylinder lock to be equipped with spring bolt operated by lever handles and dead bolt operated by thumb turn from inside and by key from outside.

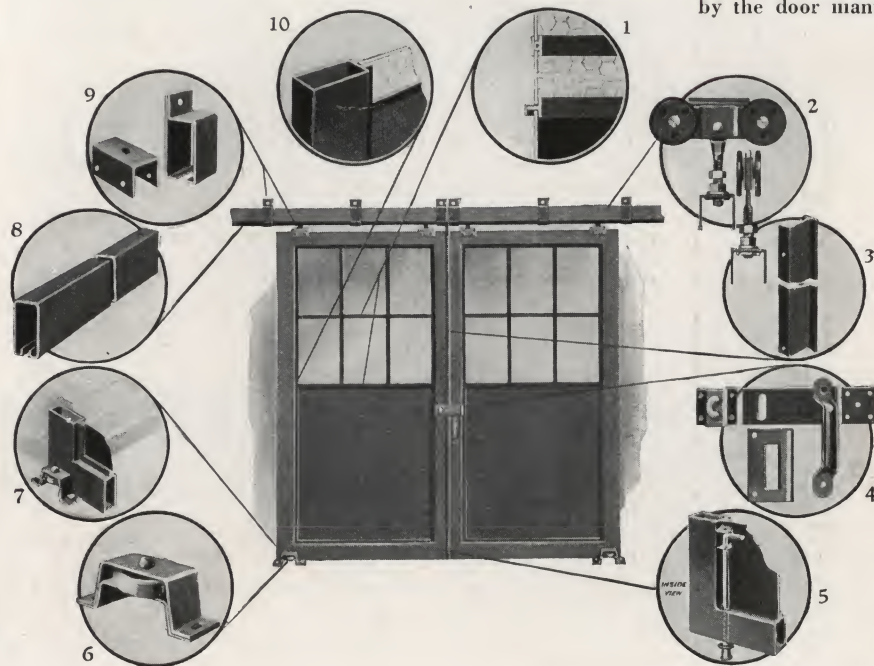
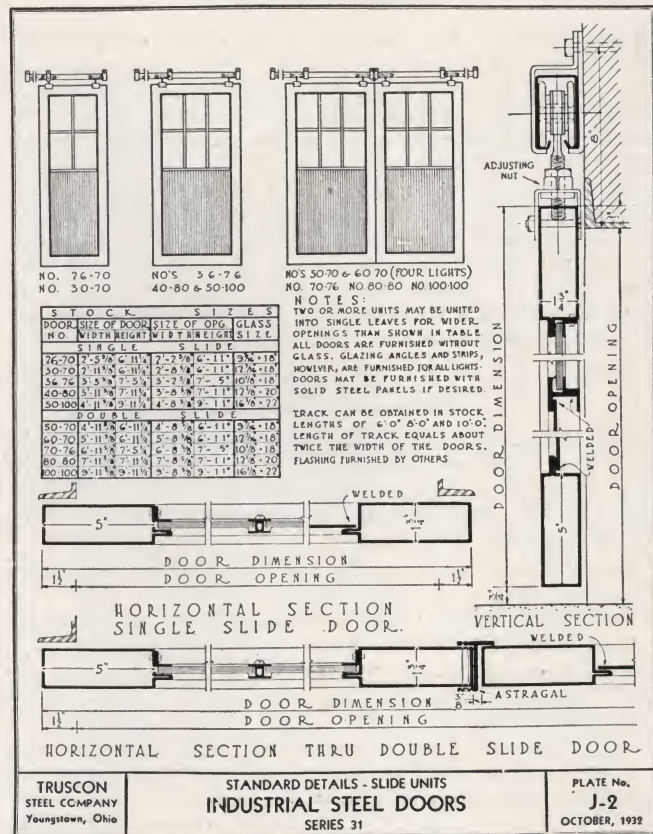
(d) Where swing doors are hung in pairs one leaf shall be equipped with foot bolt and spring top bolt.

(e) With all double swing or double slide doors, an astragal shall be provided by door manufacturer.

(5) **Pressed Steel Door Frame**—(a) All Industrial Doors shall be provided with a pressed electro-galvanized, copper-bearing steel door frame. Unless otherwise specified, these frames shall be supplied by the door manufacturer.

(b) Door frames shall be constructed of 14 gauge steel electro-galvanized, copper-bearing steel, formed to shape as shown on drawings.

SERIES 31 SLIDE TYPE



CONSTRUCTION DETAILS

- (1) **Method of Glazing**—Showing muntin bar and glazing angles for holding glass in place.
- (2) **Carriage of Trolley**—Adjustable four-wheel, roller-bearing, extra heavy trolley.
- (3) **Astragal**—Hot-rolled steel, rigidly attached to left hand leaf.
- (4) **Hardware**—Handles for opening and closing. Hasp and staple, for padlocking, attached by through bolts.
- (5) **Cane Bolt**—Placed on left hand leaf on the inside, locking leaf in place.
- (6) **Roller Guides**—For guiding door in its travel, also prevents leaf being pulled away from building.
- (7) **Corner Section**—With roller guide in position. Also showing paneling effect obtained on Series 31, steel doors.
- (8) **Channel Track**—Heavy gauge assuring continuous dependable operation.
- (9) **Bracket and Apron**—Bracket used to support channel track and apron for overhead trolley.
- (10) **Jamb Section**—Tubular stiles and rails of heavy gauge copper-bearing, electro-galvanized steel.

INDUSTRIAL DOORS FOR LARGE OPENINGS

SERIES 100

Seamless Tubular Rail, Swing and Slide Types

INDUSTRIAL Doors for large openings meet every requirement of practical use and protection and are designed to fit the conditions of industry. They have been perfected through extensive use in industrial buildings of all kinds and are furnished in practically any size and arrangement, and with any method of operation.

These Doors are made of the best grade of commercial steel. Stiles and rails of tubular steel, mitered, internally reinforced and solidly welded at all corners, give maximum strength. Size of tube and gauge of steel depend on type, size weight of door.

Furnished for openings more than 10 ft. high or 10 ft. wide. Suggestions on types of Industrial Doors to meet special conditions will be furnished without obligation.

SPECIFICATIONS

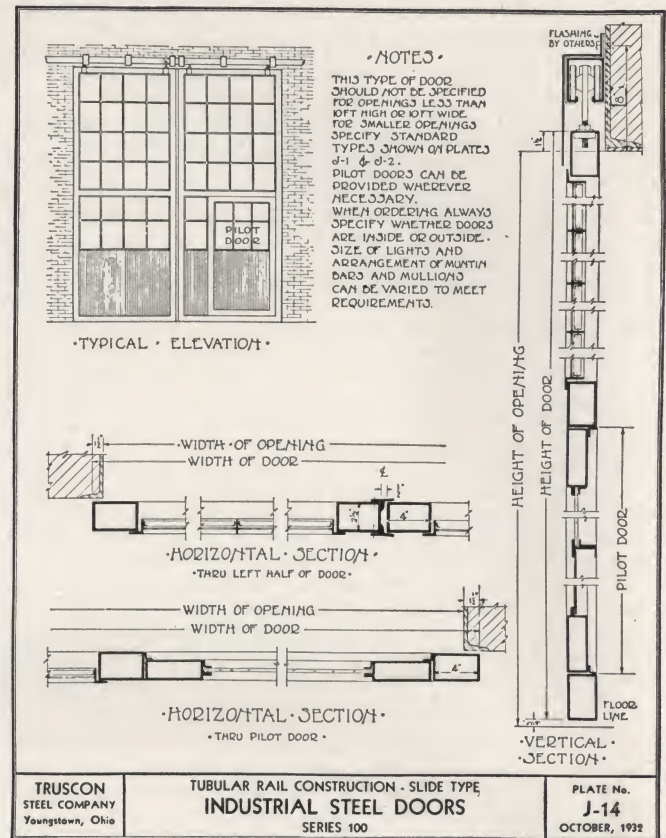
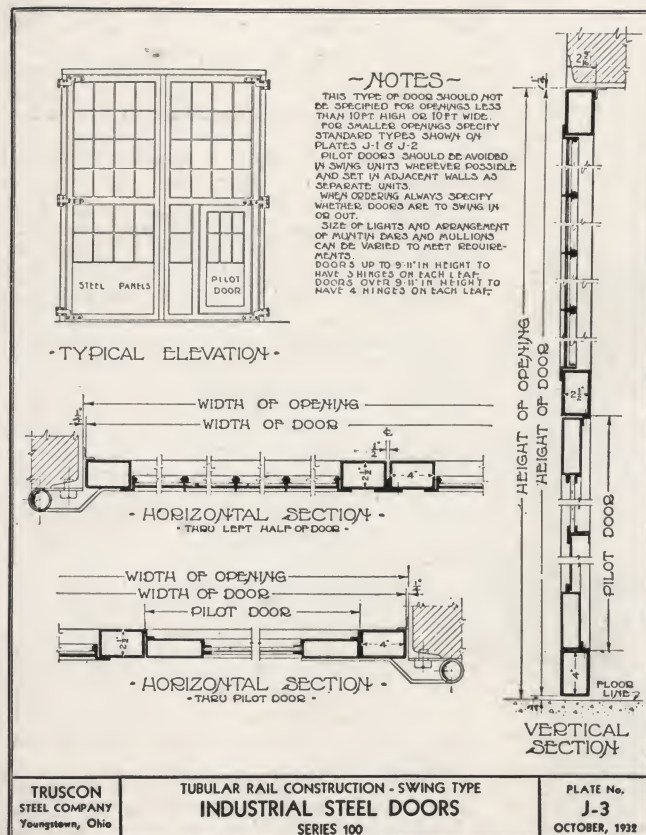
(1) **General**—All doors shown on drawings as heavy tube doors shall be Industrial Doors, Series 100, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—(a) All stiles and rails shall be constructed from cold-rolled welded steel tubing.

(b) All windows included in doors shall be constructed from hot-rolled new billet steel.

(3) **Construction**—(a) The stiles, top rail, cross rails and bottom rail, shall be constructed of 13-gauge cold-rolled welded steel tubing, 4x2½ in.

(b) The corners and intersections shall be welded and ground smooth. Welds must develop the full strength of the section. Corners shall be mitered.



(c) The lower portion of the doors shall be fitted with not less than 13-gauge patent leveled steel panel fastened in place by machine screws.

(d) The upper portion of the door shall be fitted with a window built up of Truscon standard members and glazed with glass lights as shown on the drawings. The glass shall be held in place with putty and continuous steel glazing angles.

(e) Mastic shall be applied between window and framing and between steel panel and framing to form weathertight connections.

(4) **Frames**—Where shown on the drawings, steel channel frames for all door openings shall be furnished and installed by the contractor supplying structural steel.

(5) **Hardware**—(a) Sliding doors shall be hung from Truscon standard double-wheel trolleys and heavy channel track and shall be equipped with back stops, binders and complete hardware as shown on the drawings.

(b) Swinging doors shall be equipped with Truscon Standard heavy steel strap hinges. (Ball bearing butt hinges can be furnished if specified.)

(c) All swing doors shall be equipped with Truscon Standard mortise cylinder locks (or lever latch and padlock brackets) and heavy handles on inside and out. (Cylinder lock not furnished on leaves larger in area than 50 sq. ft.)

(d) Where swing doors are hung in pairs, one leaf shall be equipped with Truscon standard cane bolt at bottom and spring bolt at top.

(e) An astragal shall be provided by door manufacturer with all double swing or double slide doors.

(6) **Painting**—All doors and frames shall receive one coat of protective paint before shipment.

(7) **Erection**—The erection of doors shall be performed by the door manufacturer.

OVERDOORS

OPERATING OVERHEAD

THIS type of door offers many advantages; economy of space, protection from the weather, neat appearance, ease of operation and great practicability.

The spring balances used in Truscon Overdoors are considerably oversize, as are all the other operating parts. The doors are sure to provide a long time of satisfactory service. Overdoors require no drilling, cutting or fitting—all operations, including a coat of paint, are completed in the shop, so that field assembly is reduced to a minimum. The sturdy steel sections are of the finest quality material and workmanship.

Ball-bearing rollers, positive weathering at jambs and high quality cylinder lock are provided on every door.

CONSTRUCTION DETAILS

(1) **Lift Chain Sheave and Spring Balance**—Note the cable stretched inside the spring to hold it in position under all conditions.

(2) **Combination Hinge and Roller Bracket**—These hinges are secured to the leaves by bolts and patented lock washers—no possible chance for them to work loose.

(3) **Weathering at Jamb**—A feature of the steel door. The guides are designed so that positive weathering is obtained when the door is closed.

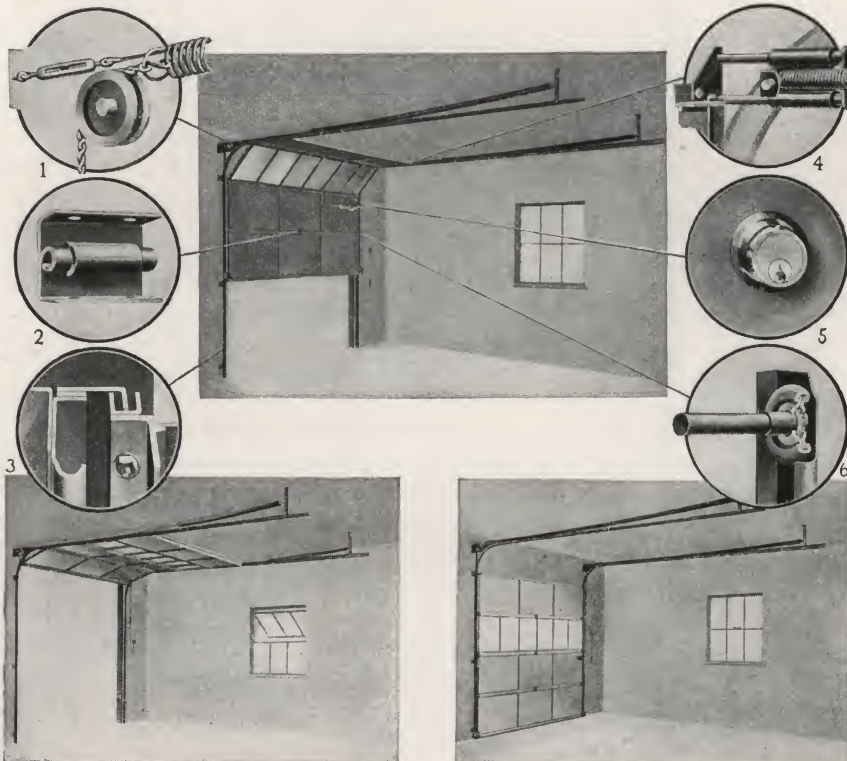
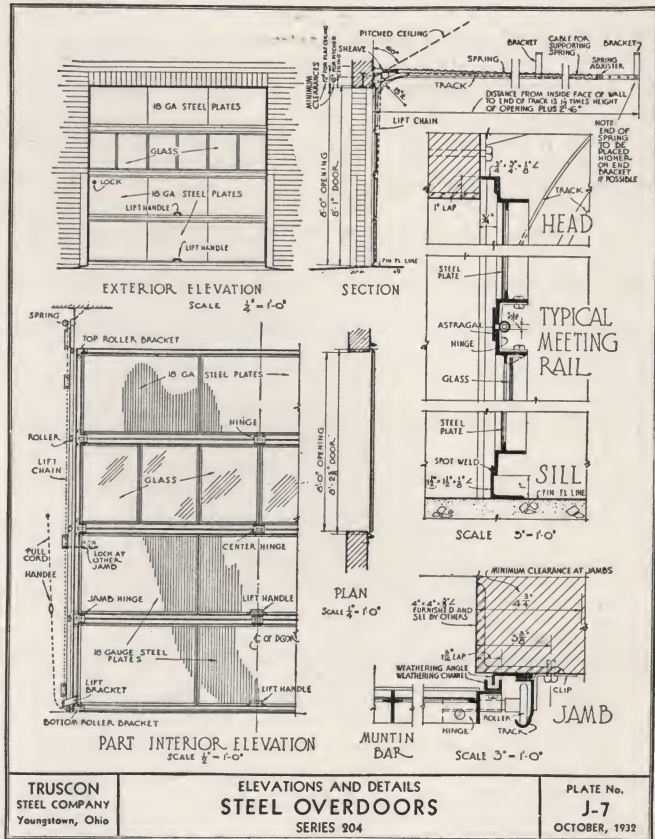
(4) **Top Roller Bracket**—When the door closes a tension is put on the spring which forces the top panel tightly against the head and jambs.

(5) **Cylinder Lock**—Because the door is rigid steel, elaborate bolts and bars are unnecessary. The lock is positive.

(6) **Ball-bearing Rollers**—Hardened steel, running in accurately formed track, assuring smooth, easy operation.

SERIES 204

For Smaller Openings



SPECIFICATIONS

(1) **General**—All doors shown on the drawings as "Overdoors" shall be as manufactured by the TRUSCON STEEL COMPANY. No substitution shall be made without the written consent or approval of the architect.

(2) **Material**—The stiles and rails of all leaves shall be constructed from hot-rolled new billet steel. The steel panels shall be constructed from cold-rolled sheets full pickled, reannealed and patent leveled.

(3) **Construction**—The stiles and rails of all leaves shall be of Truscon Standard Members. All joints shall be mortised and tenoned and air-hammer riveted. One leaf shall be open for glass to be held in place with putty. The balance of the leaves shall be fitted with steel panels electrically spot-welded to stiles and rails. The steel panels shall be not less than 18-gauge thickness.

An astragal shall be spot-welded to the top member of each meeting rail to insure weathering between each leaf.

(4) **Hardware**—Doors shall be complete with Truscon Standard Hardware for Spring Operation. Hardware shall consist of all necessary rollers, track, weathering for jambs, lift handles and cylinder lock. A pull-down cord shall be provided.

(5) **Painting**—All doors shall be given one coat of protective paint before shipment.

(6) **Erection**—The erection of all doors shall be performed by the door manufacturer.

OVERDOORS OPERATING OVERHEAD

SERIES 210 For Large Openings

THIS steel overhead is particularly adapted to requirements of automobile greasing stations, commercial garages, and other buildings where quick access to openings is necessary.

The weathering is exceptionally positive around the entire perimeter of the opening. At the meeting rail, between the two leaves, an overlapping section has been provided.

Where the doors are in continual use, as for instance in lubricating stalls of service stations, the operating mechanism should receive careful and close attention. The hardware parts for Series 210 Steel Overdoors

have been carefully designed to assure continuous, care-free performance.

Openings in the door leaves are ready to receive glass, steel panels, colored enameled panels, in fact any type of panel that will harmonize with the general construction scheme. With the exception of steel panels, this material is not furnished with the doors and is usually selected and provided by the builder.

Since these doors are of heavy steel construction, they are always equipped with a hand chain operator. This means of operation overcomes any minor changes in the tension of the overhead spring.

SPECIFICATIONS

(1) **General**—All doors shown on drawings and so marked shall be of the Overdoor type, Series 210, as manufactured by the TRUSCON STEEL COMPANY, Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Construction**—(a) Generally, outside frame members shall be made of special channel sections, securely welded at the corners. The meeting rail shall be made of special angle section overlapping and forming weather and drip sections for the leaf below.

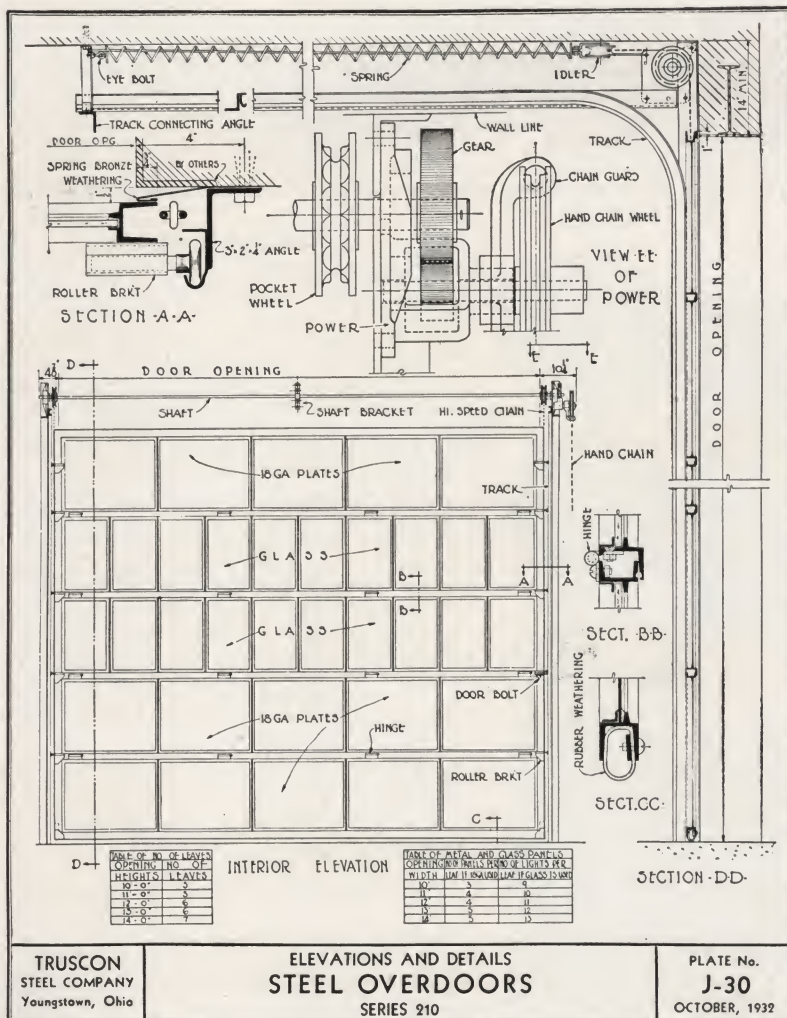
(b) Glass panels shall be arranged for inside putty glazing with glazing angle clips.

(c) Solid steel panels shall be made of 18-gauge patent leveled sheets held in place with mastic and continuous glazing angles.

(3) **Operation**—All doors shall be counterbalanced by two coil springs, one on each side of opening, lying overhead in a horizontal position. In addition, a geared hand chain operator shall be provided on all doors. Locking shall be by means of a throw bolt placed on inside at one jamb.

(4) **Painting**—All doors shall receive one coat of protective paint before shipment.

(5) **Erection**—Erection of all doors shall be performed by the door manufacturer.



OVERDOOR BIFOLD TYPE

SERIES 400S

For Extremely Large Openings

THIS type of overdoor has been designed for any building construction with large door openings and lack of space around the door which makes other types of door installations impractical.

The Series 400S permits a single section pilot door in the lower portion of its two leaves.

The counterbalancing by cast iron weights and the operating mechanism is very simple. There is no complicated machinery to get out of order. After the door is adjusted it will give continuous service.

This Bifold type Overdoor is suitable for any large size opening when a steel door of very rugged construction is desirable. The leaves are formed from structural shapes, coped and welded solidly.

The steel panels are made from 14-gauge patent leveled sheets which are heavier than those used on any other type of Overdoor. The entire door, including leaves and hardware has been carefully engineered and designed to withstand heavy duty and rough usage with a smooth and steady performance.

A very ingenious system permits one section of cast iron weights to be dropped as the top leaf passes over the curve and reaches the horizontal overhead track, and allows the rest of the weights to balance the bottom leaf perfectly until it, in its turn, has passed over the curve and reaches the track. In closing the door the operation of counterweights is exactly reversed.

SPECIFICATIONS

Series 400S

(1) **General**—All openings shown on the drawings so marked shall be of the Bifold Type Steel Overdoor, Series 400S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material and Construction**—(a) All stiles and rails shall be hot-rolled shapes made from new billet steel.

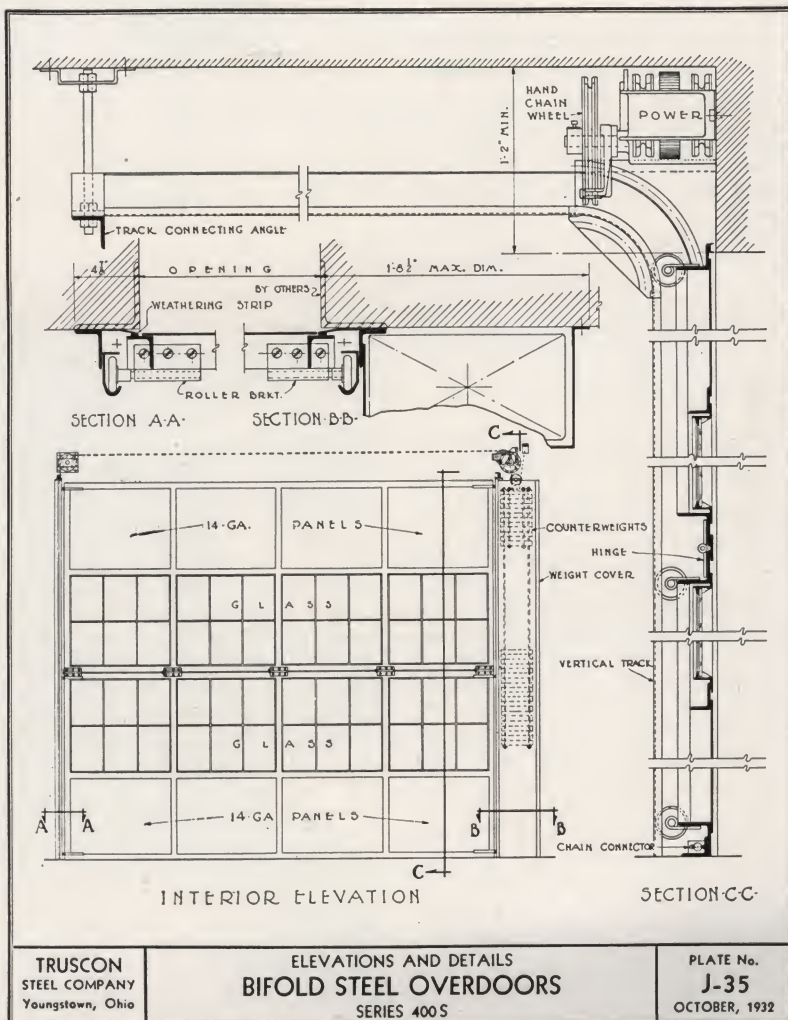
(b) All corners and intersections shall be coped and welded solidly. All welds must develop the full strength of the section. Welds shall be ground smooth on exposed surfaces.

(c) Each opening shall be divided into two leaves of standard Truscon design. All steel panels shall be 14-gauge patent leveled steel sheets. All steel window panels shall be of Truscon standard design arranged for glazing from the outside with steel window putty and spring wire glazing clips. (Continuous steel glazing angles will be furnished if so specified.)

(3) **Hardware**—Hardware shall be of special Truscon design for use with cast iron counterweights. Hardware shall consist of all necessary ball bearing rollers, track, weight rack, weight box and mechanical power.

(4) **Painting**—All doors shall receive one coat of protective paint before shipment.

(5) **Erection**—The erection of all doors shall be performed by the door manufacturer.



ACCORDION DOORS

SERIES 500HT AND 500LT

THESE doors are used extensively in railroad structures and other buildings requiring maximum height of door opening with minimum obstruction. They are particularly adaptable in extremely wide or high openings where a swing door would ordinarily be used.

In operation, the leaves fold against one another and since they cannot bind or jam, one person can open or close them easily. They are hung at the top from heavy four-wheel roller and ball-bearing trolleys, running in a heavy channel track placed above the opening. They are shipped with complete hardware, such as track, brackets, trolleys, hinges, cane bolts and binders.

Stiles and rails are made from tubing. For Series 500HT, 4x2½ in. 13-gauge tube is standard; for Series 500LT, standard industrial tube 1¾x5 in. 14-gauge is used. The large tube is used when doors are for extremely large openings or for smaller doors subject to unusually rough and hard treatment. For openings 16 ft. wide and 12 ft. high and under, receiving ordinary usage, the lighter tube will give years of uninterrupted service.

These doors are furnished with steel windows in the upper portion, although, if desired, they can be furnished with solid steel panels throughout.

Besides adding permanently good appearance to a building, Truscon Accordion Steel Doors afford greatly improved weather protection and long life. Maintenance has proved remarkably low because of their rigid construction and inherent permanent qualities.

SPECIFICATIONS

Series 500HT and 500LT

(1) **General**—All doors shown on drawings and marked as such shall be Accordion Steel Doors as manufactured by TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitutions shall be made without the written consent and approval of the architect.

(2) **Material**—(a) For Series 500HT, all stiles and rails shall be made 4x2½ in., 13-gauge cold-rolled welded steel tubing.

(b) For Series 500LT, for openings 16 ft. wide by 12 ft. high and under, all stiles and rails shall be made from Truscon Industrial tube 1¾x5 in., 14-gauge.

(c) All steel windows in door leaves shall be of Truscon standard design and made from Truscon specification new billet steel.

(3) **Construction**—(a) All corners and intersections shall be welded and ground smooth. The weld must develop the full strength of the section.

(b) The lower portion of the doors shall be fitted with 13-gauge patent leveled steel sheets (Series 500HT) or with 18-gauge patent leveled steel sheets (Series 500LT).

(c) The upper portion shall be fitted with steel windows according to Truscon standard design.

(4) **Frames**—As shown on the drawings, steel channel frames for all door openings shall be furnished and installed by the contractor furnishing structural steel.

(5) **Hardware**—(a) Doors shall be equipped with Truscon standard heavy steel hinges, track, brackets, trolleys and complete hardware.

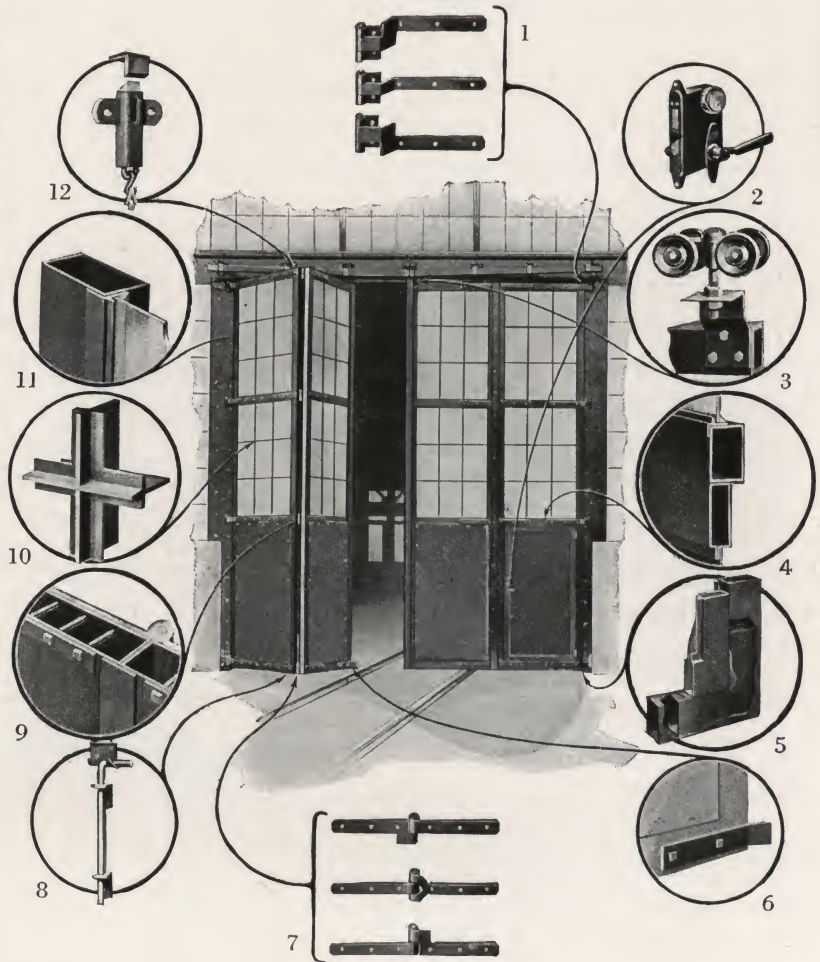
(b) Pilot doors, where shown, shall be fitted with a two-cylinder spring latch and dead bolt heavy mortise cylinder lock (or lever latch with padlock brackets) and heavy steel handles.

(c) Each opening having four leaves, two of which fold to each jamb, shall have two (2) cane bolts at the bottom and two (2) spring bolts at the top, one set for each pair of leaves.

(d) Standard astragals shall be furnished as weathering between all leaves.

(6) **Painting**—All doors shall receive one coat of protective paint before shipment.

(7) **Erection**—The erection of doors shall be performed by the door manufacturer.



CONSTRUCTION DETAILS

Series 500HT

(1) **Heavy Strap Hinges**—These specially designed hinges are wrought forged of heavy material and attached with bolts through door.

(2) **Cylinder Lock**—For Pilot Door may be locked from either side.

(3) **Specially Designed Trolley**—This four-wheel swivel, roller-bearing trolley gives strength and ease of operation.

(4) **Construction of Pilot Door**—Showing application of Pilot Door in large Accordion Doors.

(5) **Construction of Corners**—Corner reinforcements furnished with all heavy tube door leaves.

(6) **Bottom Strap**—Special strap used at bottom to guide doors in alignment when being closed.

(7) **Heavy Strap Inside Hinges**—Wrought of heavy material, specially designed for use on the inside of the door and securely attached with bolts through door.

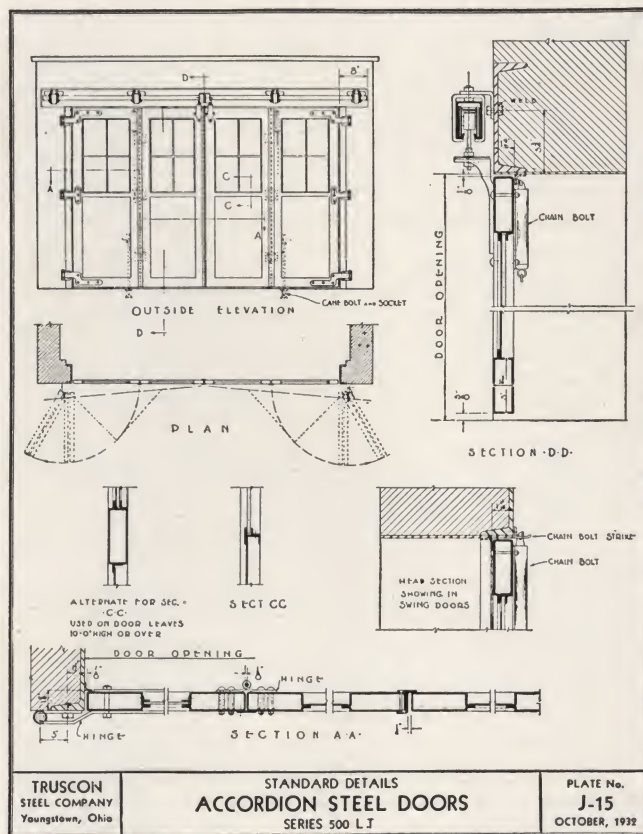
(8) **Cane Bolt**—Heavy designed cane bolt attached to inside of door leaves.

(9) **Construction of Doors**—Showing astragal, hinge and tube.

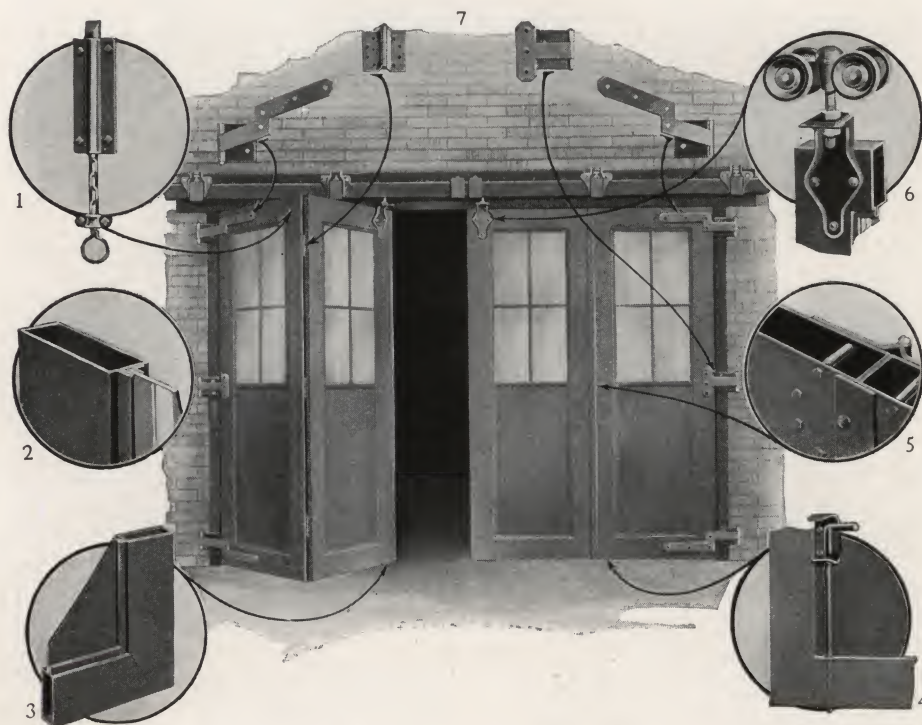
(10) **Steel Sash Joint**—Showing the dovetail mitered joint used in construction of steel sash in upper portion of door.

(11) **Tubular Door Stile**—Detail showing steel sash and tube rail of door.

(12) **Chain Bolt**—Specially designed extra heavy chain bolt used to fasten door at top.



[SPECIFICATIONS ON PAGE 40]



Series 500LT

- (1) **Heavy Spring Bolt**—One furnished at top for each pair of leaves.
- (2) **Tubular Rail Jamb**—Note heavy rail and method of holding glass in place.
- (3) **Corner Section**—Note neat paneling effect obtained with use of Truscon Industrial Door Tube.
- (4) **Cane Bolt**—One furnished at bottom of each pair of leaves.
- (5) **Astragal**—Serves as weathering member between leaves at meeting rails.
- (6) **Trolley and Hanger**—Heavy roller bearing trolley running overhead in channel track serves as support and guide.
- (7) **Hinges**—Heavy strap hinges securely bolted to leaves by through bolts.

VERTICAL LIFT DOORS

TWO-SECTION TYPE

WHERE it is desirable to have the full width of the door opening without any obstruction from the doors themselves, Two-Section Vertical Lift Doors are recommended. The door consists of two leaves which move at different speeds when raised and which clear the door opening when fully open. The upper leaf is fitted with Steel Windows and the lower leaf is covered with steel plates. In providing clearance for this type of door, the distance from the top of the door frame to the ceiling or roof must be one-half the height of the door opening plus the necessary clearance for housing the operating mechanism.

SPECIFICATIONS

(1) **General**—All doors shown on the drawings as Two-Section Vertical Lift Steel Doors shall be (Series 600LT or 600HT) as manufactured by the TRUSCON STEEL COMPANY. No substitutions shall be made without the approval of the architect.

(2) **Material**—All doors shall be constructed of tubes (either the Industrial Tube for Series 600LT or cold rolled welded tube for the 600HT) with additional horizontal and vertical tubular reinforcing members where required for strength, rigidity and design.

(3) **Construction**—(a) Series 600LT: When the door leaves do not exceed one hundred (100) square feet, the Truscon standard industrial tube shall be used.

(b) Series 600HT: If the door leaves exceed one hundred (100) square feet, they shall be constructed of 4x2½ in. 13-gauge tube.

(c) All corners and intersections shall be welded and ground to a smooth finish. The weld must develop the full strength of the section.

(d) Series 600LT: The lower panel shall be fitted with 16-gauge patent leveled steel sheets.

(e) Series 600HT: The lower panel shall be fitted with 13-gauge patent leveled steel sheets.

(f) The upper panels shall either be fitted with steel window panels of Truscon standard design or with solid steel panels.

(g) The window panels shall be of Truscon standard design for use in Truscon Two-Section Vertical Lift Steel Doors. They shall be constructed of new billet steel, according to Truscon

Two-Section Vertical Lift Doors are particularly useful for installation in warehouses, freight houses, shipping platforms, wholesale and storage buildings, ramp garages, and similar buildings. Their rugged construction and the heavy plate used makes them an effective barrier against undesired trespassers, preventing loss of merchandise. These doors can easily be worked by hand; if desired, however, they may be fitted for operation by electric power. Construction details and method of operation are shown in Plates J-8 and J-11. The Series 600HT doors can be made from structural shapes if desired.

specifications. Glass in the Series 600LT shall be held in place with glazing angles. Glass in the Series 600HT shall be held in place with steel window putty and spring wire glazing clips.

(Due to the rapidity with which the 600LT can be operated, glazing angles for holding the glass in place are deemed necessary, while the 600HT having a hand-chain operator cannot be operated as rapidly as the lighter door and glazing angles do not seem necessary, although they are furnished if specified.)

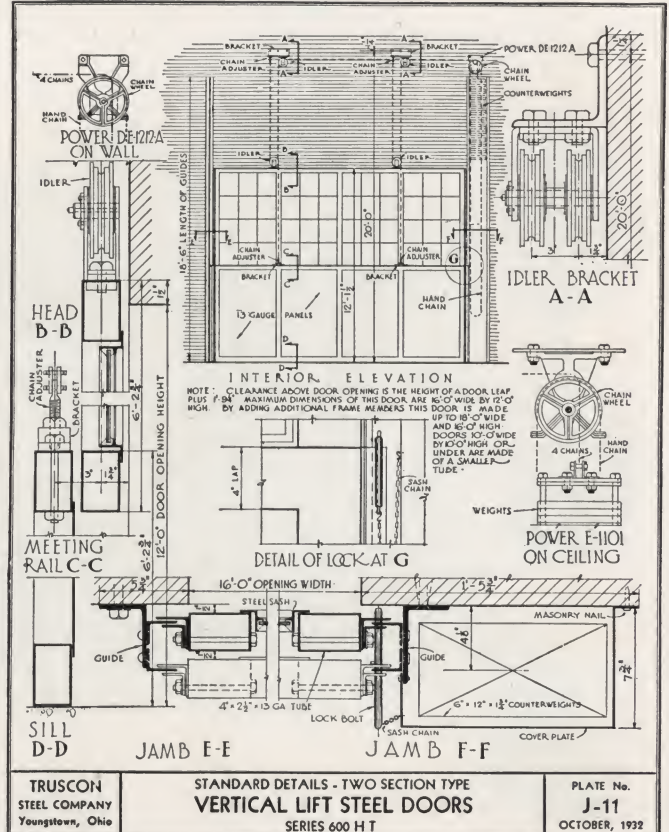
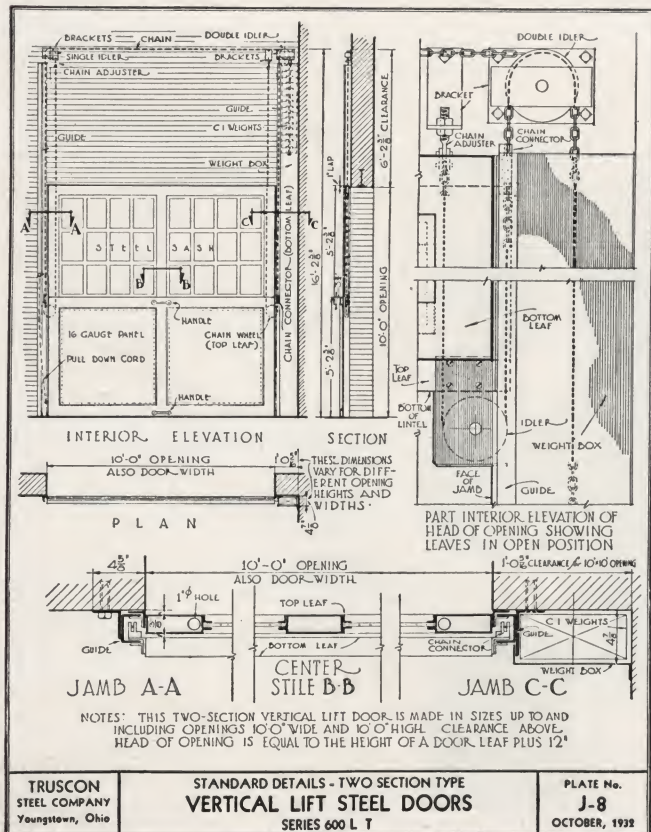
(4) **Hardware**—The upper and lower leaf shall be equipped with Truscon extra-heavy specially designed hardware. The vertical travel of the door leaves shall be controlled by structural steel guides furnished by the TRUSCON STEEL COMPANY.

(5) **Operators**—Series 600LT shall be operated by hand without the use of a mechanical power. Series 600HT shall be equipped with a mechanical power operated by hand chain. All idlers carrying a load shall be ball-bearing to decrease friction. Doors shall be perfectly balanced at all points by use of cast iron counterweights.

(6) **Frames**—The structural steel frame at both jambs and lintel (if required by building construction) shall be furnished by the contractor furnishing structural steel, together with the necessary steel supports for the door leaves and hardware.

(7) **Painting**—All doors shall receive one coat of protective paint before shipment.

(8) **Erection**—Erection of doors in conjunction with steel sash shall be performed by the door manufacturer.



BIFOLD DOORS

TWO TYPES

THESE doors are used for freight houses, warehouses, shipping and loading platforms. They are mechanically correct and require less headroom than many other types that fold above the opening. They are counterweighted to balance in any position and operate easily. For doors in small openings, no hand chain power is necessary but for doors in large openings a mechanical power is furnished.

SPECIFICATIONS

(1) General—All doors shown and noted on the drawings shall be of the Bifold Type (Series 700LT or 700HT) as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) Material—All doors shall be constructed of tubes (either the Industrial Tube for 700LT or cold-rolled welded tube for Series 700HT) with the additional horizontal and vertical tubular reinforcing members where required for strength, rigidity and design.

(3) Construction—(a) Series 700LT: When the door leaves do not exceed one hundred (100) square feet, the Truscon standard industrial tube shall be used.

(b) Series 700HT: When the door leaves exceed one hundred (100) square feet, they shall be constructed of 4x2½ in. 13-gauge tube.

(c) All corners and intersections shall be welded and ground to a smooth finish. The weld must develop the full strength of the section.

(d) Series 700LT: The lower panel shall be fitted with 14-gauge patent leveled steel sheets.

(e) Series 700HT: The lower panel shall be fitted with 13-gauge patent leveled steel sheets.

(f) The upper panels shall either be fitted with steel window panels of Truscon standard design or with solid steel panels.

(g) The window panels shall be of Truscon Standard design for use in Truscon Bifold Steel Doors. They shall be constructed of new billet steel, according to Truscon specifications. Glass in the Series 700LT shall be held in place with glazing

Besides adding greatly to the appearance of the building, Bifold Doors give positive weather protection.

Each upper leaf may carry a standard steel sash for daylighting the building or a solid steel panel. Lighted sections are especially desirable where a continuous line of doors is installed.

The bottom panels are heavy gauge steel plates, rigidly attached to the tubular frame.

angles. Glass in the Series 700HT shall be held in place with steel window putty and spring wire glazing clips. (Due to the rapidity with which the 700LT can be operated, glazing angles for holding the glass in place are deemed necessary while the 700HT, having a hand-chain operator, cannot be operated with the rapidity of the lighter door and glazing angles are not deemed necessary, but will be furnished if specified.)

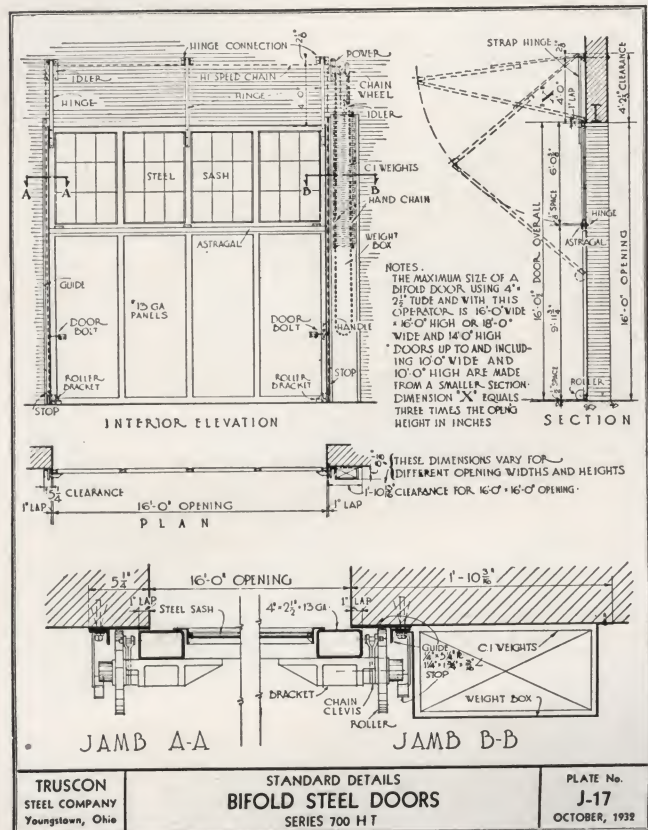
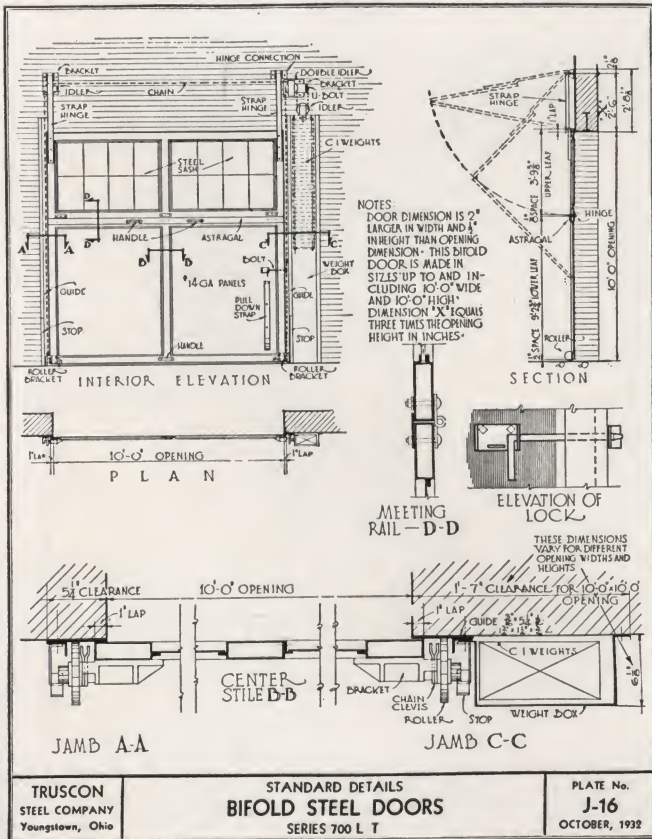
(4) Hardware—The hardware shall be of special design as manufactured by the TRUSCON STEEL COMPANY. The upper leaf shall be attached to the building by extra heavy steel hinges. The lower leaf shall be attached with iron rollers running in structural guides furnished by the TRUSCON STEEL COMPANY.

(5) Operators—Series 700LT shall be operated by hand without the use of a mechanical power. Series 700HT shall be equipped with a mechanical power operated by hand chain. All idlers carrying a load shall be ball-bearing to decrease friction. Doors shall be perfectly balanced at all points by use of cast iron counterweights.

(6) Frames—The door manufacturer shall furnish structural guides at the jambs for the vertical travel of the bottom leaf rollers. The structural steel frame at both jambs and lintel (if required by building construction) shall be furnished by the contractor furnishing structural steel, together with the necessary steel supports to support the door leaves and hardware.

(7) Painting—All doors and frames shall receive one coat of protective paint before shipment.

(8) Erection—Erection of doors shall be performed by the door manufacturer.



INDUSTRIAL CANOPY DOORS

THIS type is an all purpose door. It fits in anywhere, from the small individual residence garage to largest openings required in locomotive round-houses.

The Industrial Canopy Door is opened or closed by one of the simplest sets of operating hardware built for any door of its type. The hardware has been carefully designed and perfected through years of continuous manufacture and service. Very few moving parts are necessary and on these, ball bearings have been installed to reduce friction.

Operation of the small doors, Series 800LT, is by hand, while on the larger doors, Series 800S, mechanical power is furnished for hand chain operation. They are perfectly balanced at any degree of opening by the use of cast iron counterweights. If desired, an electrical operator will be furnished for any Industrial Canopy Door.

The weathering on either the Series 800LT or Series 800S is perfect. On both types it is steel at the head and both jambs, while at the bottom canvas insert rubber weathering is furnished.

Installation is simple and does not require expensive steel frames or structural steel supports.

SPECIFICATIONS

Series 800S

(1) **General**—All doors shown on drawings and so marked shall be Industrial Canopy Doors, Series 800S, as manufactured by the TRUSCON STEEL COMPANY. No substitutions shall be made without the approval of the architect.

(2) **Material**—Doors over one hundred (100) square feet in area shall be made of hot-rolled structural shapes.

(3) **Construction**—(a) The stiles, top rail and bottom rails shall be made from either 3-in. or 4-in. structural channels.

(b) All corners and intersections shall be welded solidly and ground smooth. All welds must develop the full strength of the section.

(c) The upper portion of the door leaf shall be fitted with steel windows of standard Truscon design. Glass shall be held in place with window putty and continuous glazing angles.

(d) The lower portion of the door leaf shall be fitted with steel panels made from patent leveled sheets, 13-gauge.

(4) **Frames**—The door manufacturer shall furnish structural guides at the jambs for the vertical travel of the rollers. The structural steel frame at both jambs and lintel (if required by building construction), shall be furnished by the contractor furnishing structural steel together with the necessary steel supports to support the door leaves and hardware.

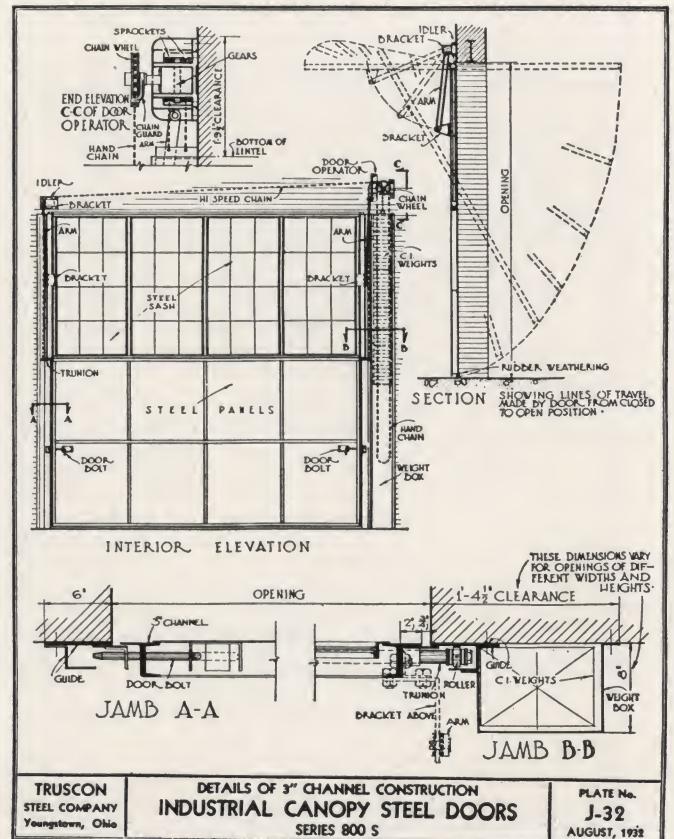
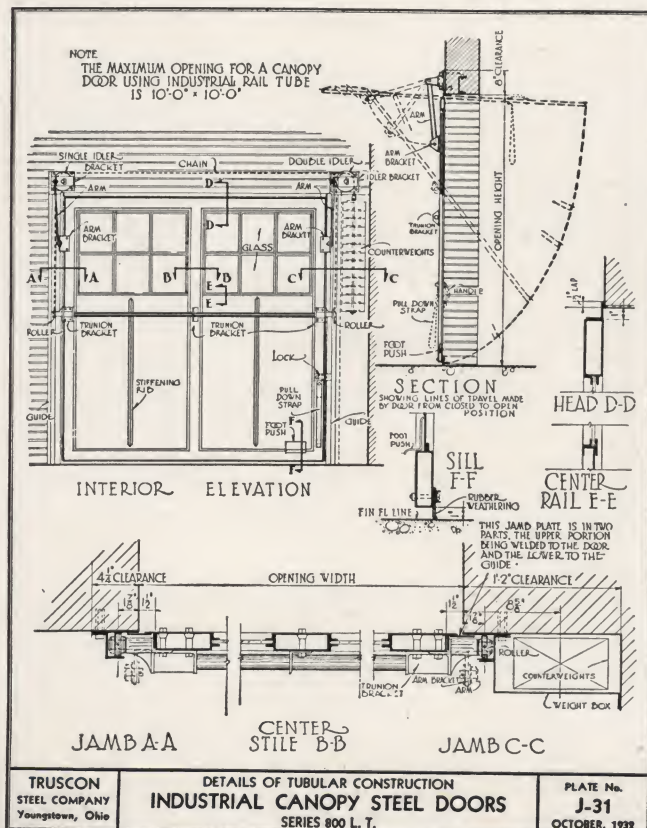
(5) **Hardware**—(a) The vertical travel of the door shall be controlled by structural steel guides, furnished by the door manufacturer. Rollers fastened to trunnions at both jambs shall operate in these guides and shall be placed so that the upper portion will balance the lower portion when the door is in an open position, forming a canopy over the opening. The swinging action of the leaf shall be controlled by heavy swing arms fastened near top of the door.

(b) Operation shall be by mechanical power operated by hand chain.

(c) Doors shall be perfectly balanced at all points by the use of cast iron counterweights.

(6) **Painting**—All doors shall receive one coat of protective paint before shipment.

(7) **Erection**—The erection of doors shall be performed by the door manufacturer.



INDUSTRIAL CANOPY DOORS

SERIES 800LT AND 800S



SPECIFICATIONS

Series 800LT

(1) **General**—All doors shown on drawings and so marked shall be Industrial Canopy Steel Doors, Series 800LT, as manufactured by the TRUSCON STEEL COMPANY. No substitutions shall be made without the approval of the architect.

(2) **Material**—Doors up to and including one hundred (100) square feet in area shall be made of Industrial Rail Tube.

(3) **Construction**—(a) The stiles, top rail and bottom rail shall be made from 1 $\frac{3}{4}$ x 5-in. Industrial Rail Tube.

(b) All corners and intersections shall be welded and ground smooth. All welds must develop full strength of the section.

(c) The upper portion of the door leaf shall be fitted with steel windows of standard design. Glass shall be held in place with steel window putty and continuous steel glazing angles.

(d) The lower portion of the door leaf shall be fitted with steel panels made from patent leveled sheets. On doors 10 ft. high they shall be 14-gauge and under 10 ft. high 16-gauge.

(4) **Frames**—The structural steel frame at both jambs and lintel (if required by building construction), shall be furnished by the contractor furnishing structural steel together with the necessary steel supports to support the door leaves and hardware.

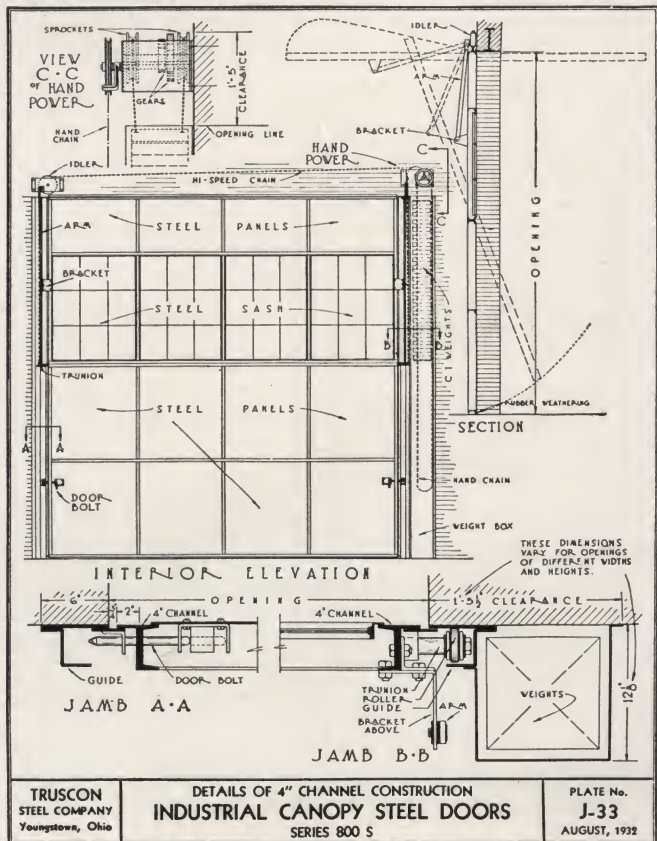
(5) **Hardware**—(a) The vertical travel of the door shall be controlled by structural steel guides, furnished by the door manufacturer. Rollers fastened to trunnions at both jambs shall operate in these guides and shall be placed so that the upper portion will balance the lower portion when the door is in an open position, forming a canopy over the opening. The swinging action of the leaf shall be controlled by heavy swing arms fastened near top of the door.

(b) Operation shall be by hand without the aid of a mechanical power.

(c) Doors shall be perfectly balanced at all points by the use of cast iron counterweights.

(6) **Painting**—All doors shall receive one coat of protective paint before shipment.

(7) **Erection**—The erection of doors shall be performed by the door manufacturer.



AIRPLANE HANGAR DOORS STRAIGHT SLIDE TYPE

TRUSCON Airplane Hangar Doors, Straight Slide Type, the strongest, finest and most serviceable doors on the market, are the result of long, practical experience in the manufacture of large steel doors many years before the advent of present airplane hangars. There is no limit to either height or width.

This type of door is built of hot-rolled structural shapes or tubes neatly coped and fitted and every joint is welded. No rivets are permitted in this construction, making it impossible for these doors to rack or the joints to become loose.

Sash in the upper portion are of standard specification and permit of maximum daylighting. Steel panels in the lower section are full pickled, reannealed and patent leveled sheets. Both sash and steel panels are rigidly attached to the stiles and rails by means of machine screws.

Perfect weathering conditions at all parts of the doors are obtained by flexible rubber strips between door ends and through close contact at the top and bottom of the door leaves.

The entire weight of the door is carried on wheels built into the lower corners of the leaves. These wheels are finely machined and mounted on thrust bearings in a housing built into the carriage of the door. Easy access to the wheels is possible, there being only a few bolts to take out in order to remove them for inspection. Guides at the top are of bronze bushed to insure easy operation. Cane bolts are supplied to lock the doors from the inside.

Overhead guides and rails embedded in the floor are not furnished. The guides are usually angles as shown on details and the rails are generally 16 lb. rails.

SPECIFICATIONS

Series 900T—Tubular Type

(1) **General**—All doors shown on drawings shall be of the heavy tubular rail type, Series 900T, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—All stiles and rails shall be constructed from steel tubing.

(3) All sash included in doors shall be constructed from hot-rolled special new billet steel. All steel panels to be not less than 13-gauge steel sheets, patent leveled.

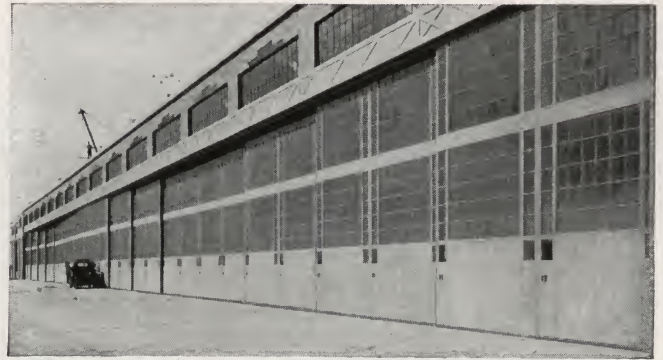
(4) **Construction**—(a) The stiles, top rail, cross rails and bottom rail shall be constructed of steel tubing $4 \times 2\frac{1}{2}$, $3 \times 2\frac{1}{2}$ or $2\frac{1}{2} \times 2\frac{1}{2}$ in.

(b) All corners and intersections shall be welded and ground smooth. Welds must develop the full strength of the section. Corners shall be mitered.

(c) The lower portion of the doors shall be fitted with a 13-gauge steel panel fastened in place with machine screws.

(d) The upper portion of the doors shall be fitted with sash

SERIES 900T AND 900S



Wayne County Airport Hangar, Wayne County, Mich.

GIFFELS & VALLET, Architects and Engineers

built up of Truscon standard members and glazed with glass lights as shown on the drawings. The glass shall be held in place with steel window putty and spring wire glazing clips. (Continuous glazing angles will be furnished if so specified.)

(e) A Standard Truscon Pilot Door shall be provided in lower portion of one door unit, where shown on drawings.

(5) **Hardware**—(a) Each door leaf shall be mounted on two adjustable roller bearing bottom rollers, equipped with grease fittings. Top rollers shall be double wheel type bronze bushed. One cane bolt and flush pull shall be furnished for each sliding leaf. (Wheel locks, clamping latch and track and guide bumpers to be furnished if specified.)

(b) Top rollers are to be bronze bushed and machined to minimize any friction developed during the rolling between the structural steel guides as furnished by general contractor. Rollers shall be of such design as to act purely as guides and in no way transmit any of the weight of the door to the overhead structural guides.

(6) **Frames and Collateral Steel**—Contractor furnishing structural steel shall furnish and erect overhead structural steel guides to conform to track layout beneath; he shall furnish and install steel contact strip at both jambs to meet weathering on door leaf; and shall also furnish and set in concrete suitable size track which must be laid perfectly straight and true to conform to track layout.

(7) **Weathering**—Steel weathering shall be furnished at top of leaves between the top rollers and at bottom of leaf for entire width. Weathering between leaves and at both jambs shall be canvas insert rubber weathering.

(8) **Painting**—All doors shall receive one coat of protective paint before shipment.

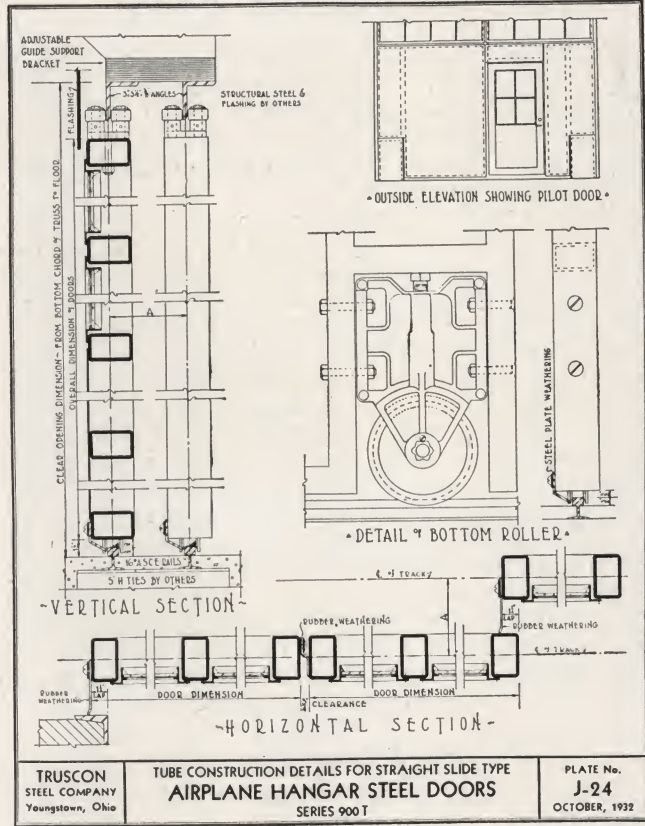
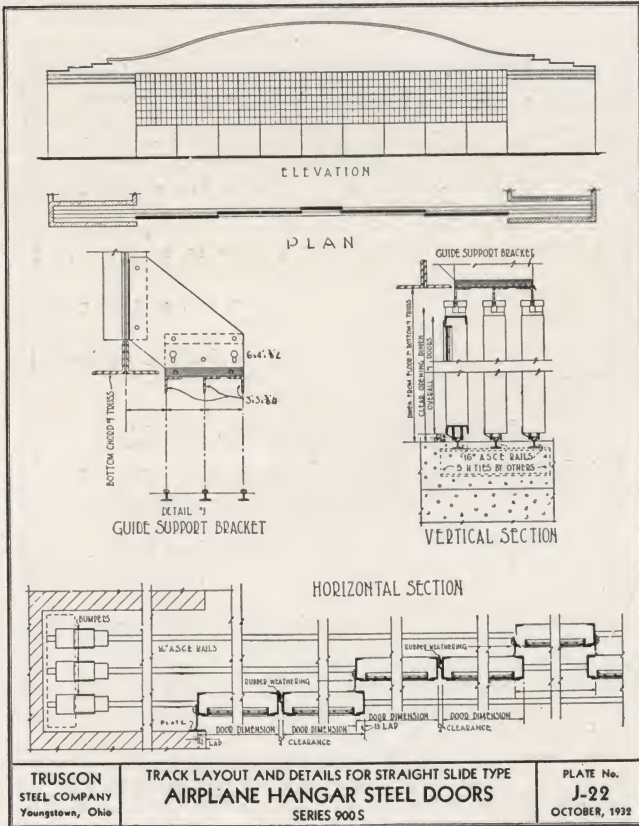
(9) **Erection**—The erection of doors shall be performed by the door manufacturer.



Curtiss Flying Service, Inc., Kansas City, Kan., Fairfax Airport

AIRPLANE HANGAR DOORS

SERIES 900T AND 900S



SPECIFICATIONS

Series 900S—Structural Type

(1) **General**—All doors shown on drawings shall be of Structural Steel Type, Series 900S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect. Tolerances usually allowed on structural steel work will not be permitted on these doors.

(2) **Material**—(a) All stiles and rails shall be of hot-rolled structural channels and I-Beams.

(b) All sash included in doors shall be constructed from hot-rolled special new billet steel. All steel panels shall be not less than 13-gauge steel sheets, patent leveled.

(3) **Construction**—(a) The top rail, cross rails and bottom rail shall be 3, 4 or 5 in. hot-rolled channels. The center vertical stile shall be an I-Beam of corresponding size.

(b) All corners and intersections shall be coped, welded and ground smooth. The welds must develop the full strength of the section.

(c) The lower portion of the doors shall be fitted with a 13-gauge steel panel fastened in place with machine screws.



Montgomery Airport Hangar, Montgomery, Ala.
FREDERICK AUSFIELD, Architect

(d) The upper portion of the doors shall be fitted with sash built up of Truscon standard members and glazed with glass lights as shown on the drawings. The glass shall be held in place with steel window putty and spring wire glazing clips. (Continuous glazing angles shall be furnished if so specified.)

(e) A standard Truscon Pilot Door shall be provided in lower portion of one door unit where shown on drawings.

(4) **Hardware**—(a) Each door leaf shall be mounted on two adjustable roller bearing bottom rollers, equipped with grease fittings. Top rollers shall be double wheel type bronze bushed. One cane bolt and flush pull shall be furnished for each sliding leaf. (Wheel locks, clamping latch and track and guide bumpers will be furnished if specified.)

(b) Top rollers are to be bronze bushed and machined to minimize any friction developed during the rolling between the structural steel guides as furnished by general contractor. Rollers shall be of such design as to act purely as guides and in no way transmit any of the weight of the door to the overhead structural guides.

(5) **Weathering**—Steel weathering shall be furnished at top of leaves between the top rollers and at bottom of leaf for entire width. Weathering between leaves and at both jambs shall be canvas insert rubber weathering.

(6) **Frames and Collateral Steel**—Contractor furnishing structural steel shall furnish and erect overhead structural steel guides to conform to track layout beneath; he shall furnish and install steel contact strip at both jambs to meet weathering on door leaf; and shall also furnish and set in concrete suitable size track which must be laid perfectly straight and true to conform to track layout.

(7) **Painting**—All doors shall receive one coat of protective paint before shipment.

(8) **Erection**—The erection of doors shall be performed by the door manufacturer.

AIRPLANE HANGAR DOORS

CURVED TRACK TYPE

SERIES 910T AND 910S

THIS type door was evolved to meet the requirement of a door to close the entire side of a large hangar. The door units operate on separate curved tracks which parallel each other, and when open the doors lie flat against the inside wall of the hangar to allow maximum opening.

Curved track door leaves are made from either structural shapes or high grade tubing. Both types are of welded design; not of riveted construction. The tolerances usually allowed on riveted construction are not permitted on Truscon Doors of welded design.

Hardware for either structural or tube construction is similar. Each door is mounted on heavy malleable iron wheels encased in the door itself, these wheels being equipped with adjustable roller swivels and roller bearings. They bear the entire weight of the door. Bronze bushed rollers at the door head act as guides when the door moves on the track.

As in all Truscon Doors, the upper portions are fitted with Steel Windows to admit light. Lower panels are of 13-gauge steel, rigidly attached to stiles and rails by machine screws. Mastic is applied under window and steel panels to form weathertight connections. A standard pilot door can be provided in the lower portion of one unit of each set if required.

SPECIFICATIONS

Series 910T—Tubular Type

(1) **General**—All doors shown on drawings shall be of the heavy tubular rail type, Series 910-T, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—(a) All stiles and rails shall be constructed from steel tubing.

(b) All sash included in doors shall be constructed from hot-rolled special new billet steel. All steel panels to be not less than 13-gauge steel sheets, patent leveled.

(3) **Construction**—(a) The stiles, top rail, cross rails and bottom rail shall be constructed of steel tubing $4 \times 2\frac{1}{2}$ in., $3 \times 2\frac{1}{2}$ in., or $2\frac{1}{2} \times 2\frac{1}{2}$ in.

(b) All corners and intersections shall be welded and ground smooth. Welds must develop the full strength of the section. Corners shall be mitered.

(c) The lower portion of the doors shall be fitted with a 13-gauge steel panel bolted in place.

(d) The upper portion of the doors shall be fitted with sash built up of Truscon standard members and glazed with glass lights as shown on the drawings. The glass shall be held in place with steel window putty and spring wire glazing clips. (Continuous glazing angles will be furnished if so specified.)

(e) A standard Truscon Pilot Door shall be provided in lower portion of one door unit, where shown on drawings.

(4) **Hardware**—(a) Each door leaf shall be mounted on two adjustable roller bearing swivel bottom rollers, equipped with grease fittings. Top rollers shall be double wheel type bronze bushed. One cane bolt and flush pull shall be furnished for each sliding leaf. (Wheel locks, clamping latch and track and guide bumpers will be furnished if specified.)

(b) Top Rollers are to be bronze bushed and machined to minimize any friction developed during the rolling between the structural steel guides as furnished by general contractor. Rollers shall be such design as to act purely as guides and in no way transmit any of the weight of the door to the overhead structural guides.

(5) **Weathering**—Steel weathering shall be furnished between top rollers. Weathering between leaves, at both jambs and at bottom of door leaf, shall be canvas insert rubber weathering.

(6) **Frames and Collateral Steel**—Contractor furnishing structural steel shall furnish and erect overhead structural steel guides to conform to track layout beneath; he shall furnish and install steel contact strip at both jambs to meet weathering on door leaf; and he shall furnish and set in concrete suitable size track which must be laid perfectly true to conform to track layout.

(7) **Painting**—All doors shall receive one coat of protective paint before shipment.

(8) **Erection**—The erection of doors shall be performed by the door manufacturer.

CONSTRUCTION DETAILS

(1) **Dovetail Miter Joints** at sash muntin intersections give added rigidity to the door; and small muntin bars offer minimum obstruction to the passage of light.

(2) **Steel Windows** are of Truscon standard design. Glass is held in place by steel window putty and spring wire glazing clips.

(3) **Steel Panels** in lower portion of the door are of 13-gauge thickness and are fitted to the outside rails to give a plane smooth surface without any openings or recesses which might collect water and cause corrosion. Mastic is applied under both window and steel panels before being fastened to framing to form a weathertight connection.

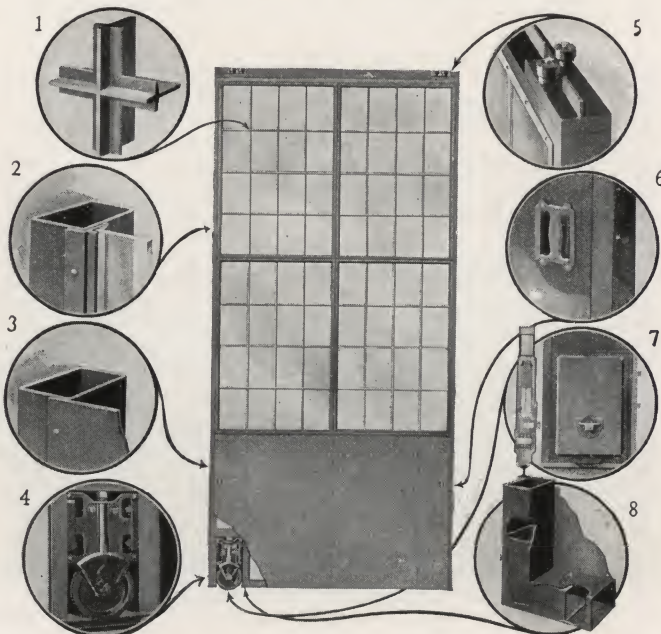
(4) **Malleable Iron Wheels**, mounted in malleable housing with roller swivel and roller bearing on vertical shaft are equipped with grease fittings to insure easy operation of the doors.

(5) **Steel Rollers**, bronze bushed, attached to head of doors to run along overhead guides with minimum friction.

(6) **Flush Type Handle** in the panel of each door to provide an easy grip in opening or closing.

(7) **Each Sliding Leaf** is equipped with two adjustable bottom rollers, two top rollers, one cane bolt and one flush pull.

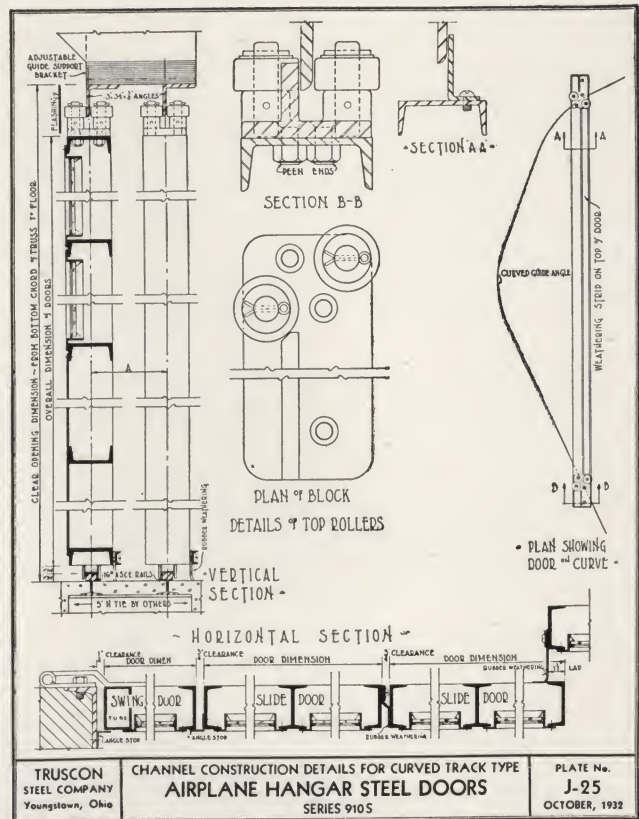
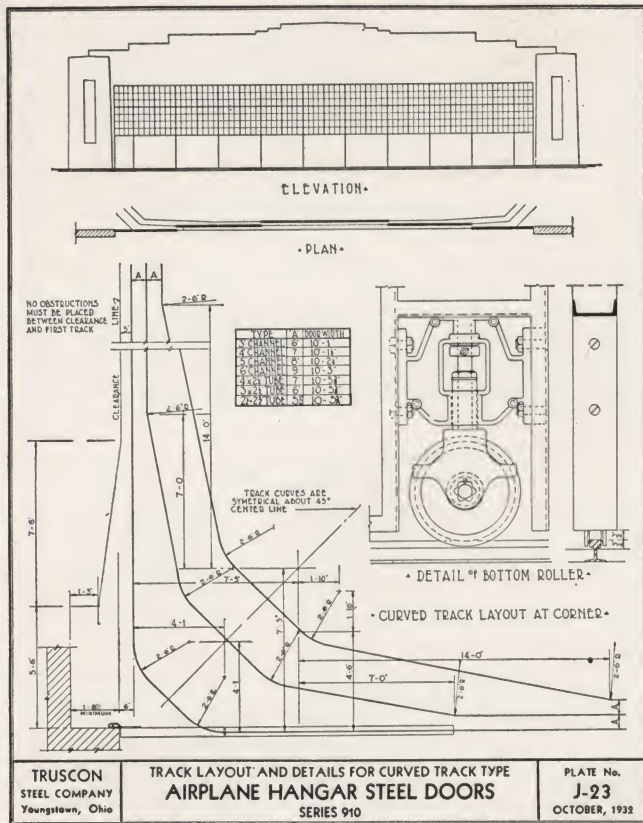
(8) **Stiles and Rails** are built of cold drawn welded steel tubing mitered and internally reinforced at the corners. Reinforcing members extend 12 in. in each direction.



AIRPLANE HANGAR DOORS

CURVED TRACK TYPE

SERIES 910T AND 910S



SPECIFICATIONS

SERIES 910S—STRUCTURAL TYPE

(1) General—All doors shown on drawings shall be of Structural Steel Type, Series 910S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect. Tolerances usually allowed on structural steel work will not be permitted on these doors.

(2) Material—(a) All stiles and rails shall be of hot-rolled structural channels and I-Beams.

(b) All sash included in doors shall be constructed from hot-rolled special new billet steel. All steel panels to be not less than 13-gauge steel sheets, patent leveled.

(3) Construction—(a) The top rail, cross rails and bottom rail shall be 3, 4 or 5 in. hot-rolled channels. The center vertical stile shall be an I-Beam of corresponding size.

(b) All corners and intersections shall be coped, welded and ground smooth. The welds must develop the full strength of the section.

(c) The lower portion of the doors shall be fitted with a 13-gauge steel panel fastened in place with machine screws.

(d) The upper portion of the doors shall be fitted with sash built up of Truscon Standard members and glazed with glass lights as shown on the drawings. The glass shall be held in place with steel window putty and spring wire glazing clips. (Continuous glazing angles will be furnished if so specified.)

(e) A standard Truscon Pilot Door shall be provided in lower portion of one door unit, where shown on drawings.

(4) Hardware—(a) Each door leaf shall be mounted on two adjustable roller bearing swivel bottom rollers, equipped with grease fittings. Top rollers shall be double wheel type bronze bushed. One cane bolt and flush pull shall be furnished for each sliding leaf. (Wheel locks, clamping latch and track and guide bumpers will be furnished if specified.)

(b) Top rollers are to be bronze bushed and machined to minimize any friction developed during the rolling between the structural steel guides as furnished by general contractor. Rollers shall be of such design as to act purely as guides and in no way transmit any of the weight of the door to the overhead structural guides.

(5) Weathering—Steel weathering shall be furnished between top rollers. Weathering between leaves, at both jambs and at bottom of door leaf shall be canvas insert rubber weathering.

(6) Frames and Collateral Steel—Contractor furnishing structural steel shall furnish and erect overhead structural steel guides to conform to track layout beneath; he shall furnish and install steel contact strip at both jambs to meet weathering on door leaf; and shall also furnish and set in concrete suitable size track which must be laid perfectly straight and true to conform to track layout.

(7) Painting—All doors shall receive one coat of protective paint before shipment.

(8) Erection—The erection of doors shall be performed by the door manufacturer of same.



Central Airport, Camden, N. J.

BLACK & BIGELOW, Architects

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

POWER OPERATED HANGAR DOORS

A COMPLETE LINE

DURING the past several years aviation has progressed so rapidly that today there remains very little resemblance of the old awkward and slow methods of handling airplane equipment. This change has been not only in airplanes and airplane equipment, but also a decided improvement has been made in the housing and handling facilities of the modern airport. Modern airport methods of handling the present-day business call for speed and machine precision in all their phases. Airplanes must arrive and leave on schedule. They must be refueled and inspected. Repairs must be made with a minimum loss of time.

Recognizing the trend in aviation, several years ago the TRUSCON STEEL COMPANY perfected the power-operated Hangar Door, that its entire width would open in fifty seconds. This door was readily accepted by the aviation industry. Since the building of the original door, several other types have been perfected, until today this company offers a complete line of Power-Operated Airplane Hangar Doors to suit any opening.

Realizing that it was desirable to operate the entire door opening, regardless of its width, as one section or in several separate sections, Truscon engineers designed all types of Power-Operated Airplane Hangar Doors so that any part of the entire door width could be opened independently of the balance of the opening or the whole opening could be opened at one time. In addition, it was essential that the design be such

that removable posts or mullions would be unnecessary, in order that the whole opening would be available for immediate use and eliminate complicated special designs necessary to handle and dispose of the removable posts.

In designing the doors, shown on the following pages, Truscon engineers considered that the doors must at some time, open under abnormal conditions. Not only must the operating machinery be strong enough to operate the leaves under these conditions, but the leaves themselves must be designed so that they would undertake their portion of the work. Very little would be accomplished by having strong machinery if the leaves were not correctly designed to open under all conditions.

The framing members used in all Truscon Power-Operated Airplane Hangar Door leaves are hot-rolled structural sections. All corners and intersections are coped and carefully welded to develop the full strength of the section. Tests have proved that the welds are as strong or stronger than the sections welded together and that failure will occur elsewhere than through the weld.

All parts going into the machinery to operate the door leaves have been engineered with a large safety factor. This assures continuous satisfactory operation.

In the remote possibility of the electric power being shut off, when needed, hand-operators have been provided on all types.



American Airways Hangar, Chicago, Ill.
HOENER, BAUM & FROESE, Architects

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

AIRPLANE HANGAR DOOR

ORIGINAL Kanopy TYPE

SERIES 920S

THIS original "Kanopy" Type door possesses marked advantages, notably in convenience, strength, reliability and safety, as well as in ease with which the design can be adapted to various types of hangar construction.

The door is of full canopy type. The door leaf has no telescoping or folding features and is not counterweighted. Each leaf is hinged at the top of the hangar opening and swings upward to form a canopy or marquee, virtually increasing the area of the building by the full height of the door.

The door facing is made up of standard steel sidewall fixed windows and light plate mounted on 4 in. channel framing. Construction is standardized in the form of panels 25 to 30 feet long, dividing the door face into two or three horizontal sections. Combinations of these panels will take care of any opening.

All framing is welded and the gearing is enclosed in oil-tight housings, insuring efficiency and quietness of operation. Despite the full canopy effect, the extended leaf, when open, is considerably counterbalanced by the machinery and supports which lie behind the front truss, and consequently does not throw any torsional loads into the front truss.

SPECIFICATIONS

(1) **General**—All Airplane Hangar Doors shown on drawings and so marked shall be the Original "Kanopy" Type. Series 920S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material and Construction**—(a) The openings shall be divided into (state number of separate movable leaves desired to make complete width). The leaves shall be pivoted to the bottom chord of the front truss and open up and outward, forming a canopy over the opening equal in width when open, to the height of the door when closed.

(b) The door leaf framing shall be constructed of hot-rolled structural steel shapes. Approximately sixty per cent of the door opening shall be provided with steel windows of standard Truscon design. The glass in the steel windows shall be held in place by steel window putty and spring wire glazing clips and shall be glazed from the outside. The leaves shall be fitted with 13-gauge steel plates for a height of 5 ft. 0 in. above the floor. The panel portion above the steel windows shall also be 13-gauge. The edges of all steel windows and steel panels in contact with the framework will be imbedded in mastic and secured to the frame with machine screws, making a wethertight connection.

(c) Pilot Doors may be provided for each opening adjacent to the jambs, if so specified. Pilot doors shall be of standard Truscon industrial tube type equipped with mortise cylinder lock for locking from one or both sides.

(d) All corners and intersections shall first be coped and then welded. All welds shall be ground smooth on exposed surfaces. Welds shall develop the full strength of the section.

(3) **Hinge Beams and Motor Supports**—The door frames shall be attached directly to a series of one piece rigid hinge beams. The hinge beams shall be supported to a corresponding series of machinery supports upon which the operating mechanism shall be placed.

(4) **Weathering**—Weathering at jambs and between separate movable portions of the opening shall consist of cotton insert rubber weathering formed into a semi-circle around the end section of the leaves. Between the bottom chord and the top of the door leaf, an adjustable metal weather strip shall be provided. Weathering at the bottom of the leaf shall be an adjustable strip of cotton insert rubber weathering.

(5) **Operating Mechanism**—(a) In general, the operating mechanism shall be designed to

transmit power from the electric motor through a series of enclosed gears and large machined screws.

(b) Each separate movable portion of the opening shall be powered by a single electric motor of high torque elevator type fitted with magnetic brake. Torque from the motor shall be transmitted to the line shaft connecting the lifting units by means of a silent chain drive.

(c) Opposite each hinge beam and on the machinery support shall be placed the driving unit consisting of enclosed gears, running in a continuous bath of lubricant, and the large special connecting machined screw.

(d) The power shall be applied to the top of the hinge beam through a special cut screw and swivel nut. The threads of the screw shall be cut at such an angle that the swivel nuts operating on them cannot be moved by the weight of the door leaves.

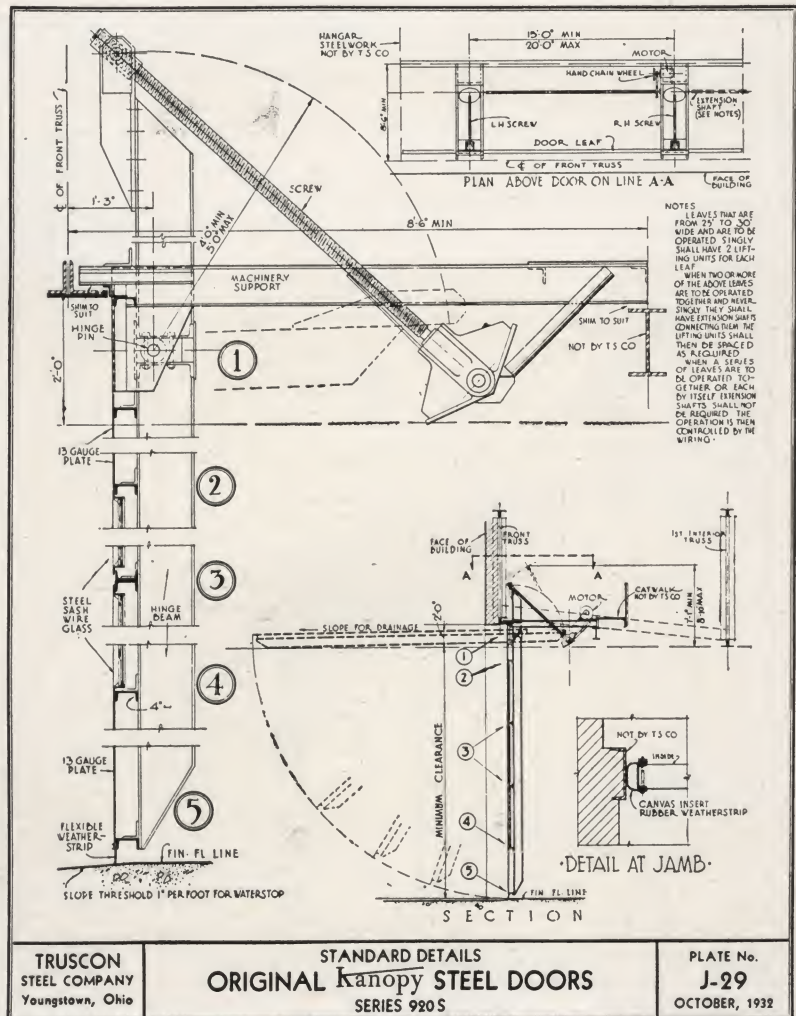
(e) All parts, such as motors, limit switches, brakes, etc., shall be of high grade material. Operators shall be designed to open doors from full closed to full open within fifty to sixty seconds.

(f) Each separate operating unit shall be fitted with an emergency hand operator.

(6) **Painting**—All door leaves and operating parts shall be given one coat of protective paint before shipment.

(7) **Erection**—(a) The erection of the door and operators shall be performed by the door manufacturer.

(b) The wiring of all electrical equipment shall be done by the electrical contractor.



TELESCOPIC CANOPY HANGAR DOORS

SERIES 930S
Counterweighted

DESIGNED to meet the ever increasing demand of airways operators for an electrically operated hangar door that offers fast operation with a resultant saving of heat and increased efficiency in a highly paid mechanical personnel freed from the burdensome task of moving a multiple leaf slide door by hand.

Telescopic Canopy Hangar Doors in their movement require no space inside the hangar and consume a minimum of apron space. Each door is divided horizontally into two equal sections. The upper section is pivoted at the front truss and swings outward and upward. The lower section raises and swings simultaneously with the swing of the upper section. The canopy formed when the leaves are in this position is equal to one-half the opening height. The door does not project inside the building to interfere with the lighting or sprinkler systems. The opening may be divided vertically into any number of separate operating sections, starting with a 20-ft. wide section and up to a width to suit individual operating conditions.

The doors are built of hot-rolled structural steel shapes of sizes and weights to suit the dimensions and operating conditions of particular hangar openings. The door panels are a combination of 13-gauge steel plates and Truscon Standard Steel Windows. The electric operator is a mechanical perfection developed by Truscon engineers to provide fast, quiet, positive operation. Fast emergency hand operation is provided to open the door in case of power failure.

The basic design of the Truscon Telescopic Canopy Hangar Door locks the door securely in any position. These same basic principles keep the loads imposed on the front truss at a minimum with the result that the truss supporting the door will be approximately the same weight as a typical truss.



American Airways Hangar, Chicago, Ill.
HOENER, BAUM & FROESE, Architects

SPECIFICATIONS

(1) **General**—The openings on the drawings so marked shall be of Telescopic Canopy Doors, Series 930S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. The openings shall be divided into (state number of separate movable leaves desired to make complete width). The leaves shall be pivoted to the bottom chord of the front truss and open up and outward. When open the bottom section of the leaves shall lie directly under the top section. The two sections shall extend out from the front truss forming a canopy over the opening.

(2) **Material and Construction**—(a) The door leaf framing shall be constructed of hot-rolled structural steel shapes. Approximately 60% of the door opening shall be provided with steel windows of standard Truscon design. The glass in the steel windows shall be held in place by steel window putty and spring wire glazing clips and shall be glazed from the outside. The leaves shall be fitted with 13-gauge patented leveled steel sheets to a height 5 ft. 0 in. above the floor. The panel portion above the steel windows shall be 16-gauge patent leveled steel sheets. The edges of all windows and steel panels in contact with the framework shall be imbedded in mastic and secured to the frame with machine screws making a weathertight connection.

(b) Pilot Doors may be provided for each opening adjacent to the jambs if so specified. Pilot Doors shall be of standard Truscon industrial tube type equipped with cylinder lock for locking from one or both sides.

(c) All corners and intersections shall first be coped and then welded. All welds shall be ground smooth on exposed surfaces. Welds shall develop the full strength of the section.

(3) **Hinge Beams and Motor Supports**—The door frames shall be attached directly to a series of telescoping hinge beams. The hinge beams shall be supported to a corresponding series of machinery supports which also support the operating mechanism.

(4) **Weathering**—At jambs and between top and bottom sections and at the top of the leaves shall be adjustable metal weathering strips. Weathering between separate movable portions of the opening shall consist of cotton insert rubber weathering. Cotton insert rubber weathering will be furnished at jamb and sill if so specified.

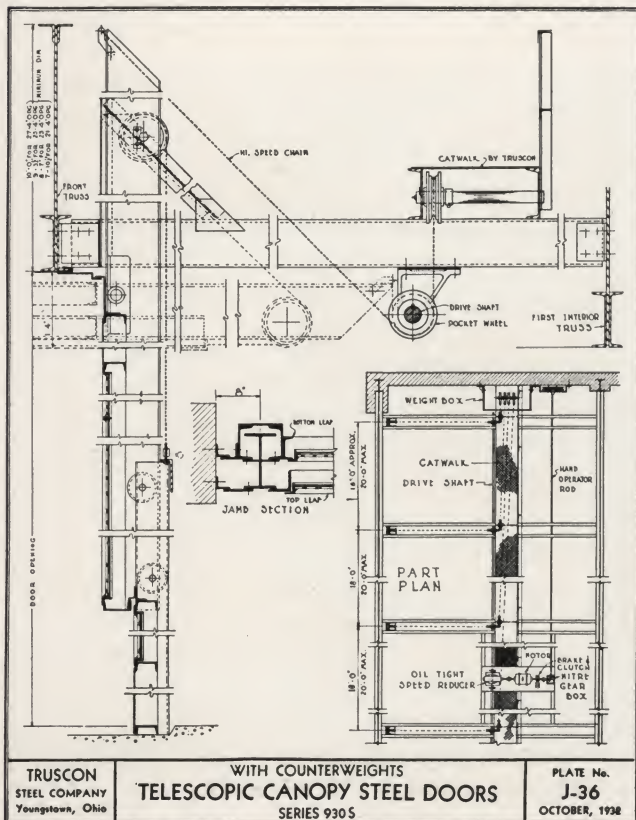
(5) **Operating Mechanism**—(a) In general, the operating mechanism shall be of the counterweighted type, balancing the leaves at any degree of opening. The motors, brakes, worm and gear reducers, limit switches, control panels, line switches, chain, cables, sprockets and all connections shall be high-grade of standard manufacture. Operators shall be designed to open doors from full closed to full open within fifty to sixty seconds.

(b) Each separate operating unit shall be fitted with an emergency hand operator.

(6) **Painting**—All door leaves and operating parts shall be given one coat of protective paint before shipment.

(7) **Erection**—(a) The erection of the doors and operators shall be performed by the door manufacturer.

(b) Wiring of all electrical equipment shall be done by the electrical contractor.



TELESCOPIC CANOPY HANGAR DOORS

SERIES 940S Without Counterweights

BASICALLY this type is the same as the Truscon Telescopic Canopy Hangar Door Series 900S described on page 52. The telescoping leaves are exactly the same in all respects, the difference being in their manner of operation. This door is operated by a compound pull of cables wrapping around drums as the leaves open. No counterweights are used. A large safety factor is provided by the multiple cables attached to each arm.

SPECIFICATIONS

(1) **General**—The openings on the drawings so marked shall be of the Telescopic Canopy Type Hangar Door, Series 940S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. The openings shall be divided into (state number of separate movable leaves desired to make complete width. The leaves shall be pivoted to bottom chord of front truss and open up and outward. When open the bottom section of the leaves shall lie directly under the top section. The two sections shall extend out from the front truss forming a canopy over the opening.

(2) **Material and Construction**—(a) The door leaf framing shall be constructed of hot-rolled structural steel shapes. Approximately 60% of the door opening shall be provided with steel windows of standard Truscon design. The glass in the steel windows shall be held in place by steel window putty and spring wire glazing clips and shall be glazed from the outside. The leaves shall be fitted with 13-gauge patent leveled steel sheets to a height 5 ft. 0 in. above the floor. The panel portion above the steel windows shall be 16-gauge patent leveled steel sheets. The edges of all windows and steel panels in contact with the framework will be imbedded in mastic and secured to the frame with machine screws, making a weather-tight connection.

(b) Pilot Doors may be provided for each opening adjacent to the jambs if so specified. Pilot Doors shall be of standard Truscon industrial tube type equipped with mortise cylinder lock for locking from one or both sides.

(c) All corners and intersections shall first be coped and then welded. All welds shall be ground smooth on exposed surfaces. Welds shall develop the full strength of the section.

(3) **Hinge Beams and Machinery Supports**—The door frames shall be attached directly to a series of telescoping hinge beams. The hinge beams shall be supported to a corresponding series of machinery supports which also support the operating mechanism.

(4) **Weathering**—Weathering at jambs and between top and bottom sections and at the top of the leaves shall be adjustable metal weathering strips. Weathering between separate movable portions of the opening shall consist of cotton insert rubber weathering. Cotton insert rubber weathering will be furnished at jamb and sill if so specified.

(5) **Operating Mechanism**—(a) In general, the operating mechanism, designed to open the

door within fifty to sixty seconds, shall transmit power to the hinge beams by means of flexible steel cables operating over geared drums, lying in a horizontal position.

(b) Power shall be transmitted from the motor through a speed reducer to the horizontal line shaft. Small pinion gears on the shaft shall drive the geared drums over which the flexible steel cable shall be wound.

(c) Two separate flexible steel cables shall be run over idlers at the top of hinge beams and shall return to a dead-end placed near the geared drum. The other ends of the two cables shall wrap around the drum as it revolves, in grooves provided for the cables.

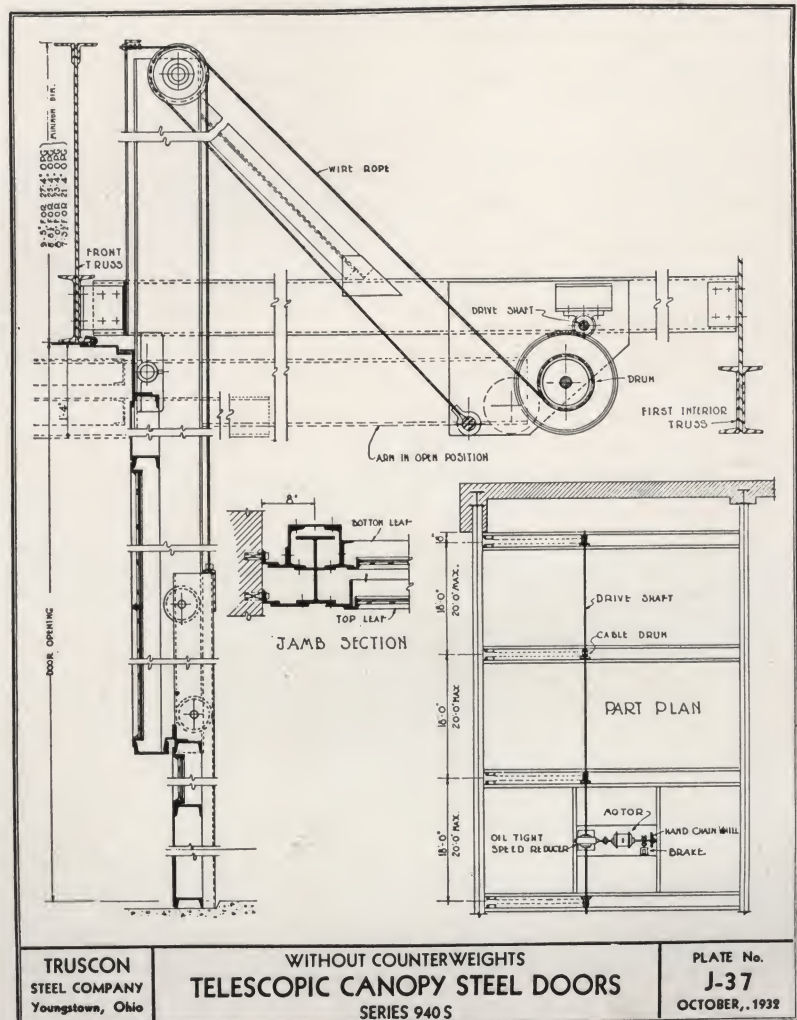
(d) Large extra heavy magnetic brakes shall be placed on the motor to stop and hold the door in any desired position. The action of the brakes shall be automatic and operate as soon as the power for the motor is turned off.

(e) Each separate operating unit shall be fitted with an emergency hand operator.

(6) **Painting**—All door leaves and operating parts shall be given one coat of protective paint before shipment.

(7) **Erection**—(a) The erection of the doors and operators shall be performed by the door manufacturer.

(b) Wiring of all electrical equipment shall be done by the electrical contractor.



VERTICAL LIFT-SWING DOORS

SERIES 1000T

THE design of an efficient pier calls for a specialized treatment, one of the most important problems being the doors. Approximately 80% of the area of the side walls of an up-to-date pier is occupied by doors. Space is limited and expensive so that full utilization should be made of every square foot. When opened, the doors must be out of the way; when closed they must form positive protection against intruders and from the elements. They must be easy to operate and should render continued, unfailing service.

Architects, when designing a pier, demand a door of rugged construction that will compare in permanence and durability with the other portions of the structure. The TRUSCON STEEL COMPANY, through its engineering organization and facilities for fabrication, has been able to incorporate permanence and durability with ease of operation into both Series 1000T and 1000S Vertical Lift-Swing Doors. Many hundreds of these doors have been built and are being used today in the most modern and up-to-date piers.

The door is divided horizontally into two equal sections. The upper section contains the glass and provides excellent daylighting for the interior. The lower solid section slides vertically in guides on the door jamb into guides on the upper section which is hinged to the lintel. The nested sections can then be swung inward to any angle up to a horizontal position. The raising and swinging movements are accomplished by operators with hand or electric power control. All mechanical details have been designed with great care.

SPECIFICATIONS

Series 1000T—Tubular Construction

(1) **General**—All doors shown on the drawings as Vertical Lift-Swing Doors shall be of a heavy tubular type, Series 1000T as manufactured by the TRUSCON STEEL COMPANY, Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—All doors shall be constructed from cold-rolled welded steel tubing, with additional horizontal and vertical reinforcing members of the same material where required for strength and rigidity.

(3) **Construction**—(a) The stiles, top rail, cross rails and bottom rail shall be constructed of 4x2½-in. 13-gauge cold-rolled welded steel tubing.

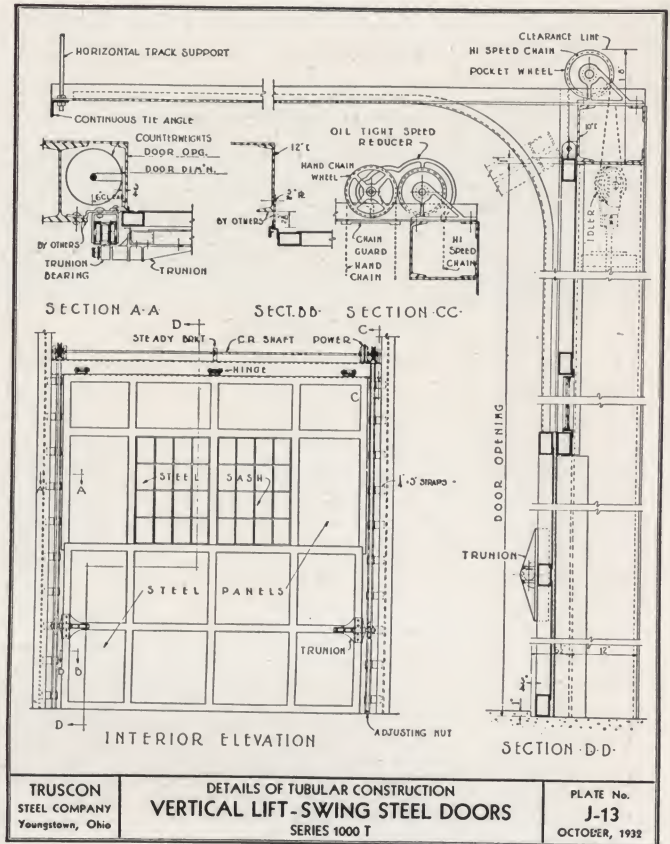
(b) The corners and intersections shall be welded and ground smooth. All welds must develop the full strength of the section. Corners shall be mitered.

(c) The lower portion of the doors shall be fitted with 13-gauge steel panels fastened in place with machine screws.

(d) The upper portion of the door shall be fitted with windows built up of Truscon Standard members, not less than



Erie R. R. Pier No. 21, North River, New York, N. Y.



1½-in. in depth, with all joints air-hammer riveted and glazed with glass lights as shown on drawings. The glass shall be held in place with steel window putty, and spring wire glazing clips. (Continuous steel glazing angles shall be furnished if so specified.)

(e) Pilot doors, opening inward, shall be provided in the lower leaf where indicated, and shall be equipped with Truscon standard hardware, either a two cylinder spring latch and dead bolt mortise cylinder lock or a lever latch with padlock brackets. All hardware shall be flush on the outside.

(4) **Frames**—(a) The door manufacturer shall include necessary door guides to carry the vertical travel of the door.

(b) The necessary structural steel frame to support the door and door operator, and to provide for the counterweights, shall be furnished and erected by the structural steel contractor.

(c) The two jamb weathering plates opposite the bottom leaf shall be furnished and installed by the structural steel contractor.

(5) **Hardware**—(a) The lower leaf shall be equipped with Truscon extra heavy specially designed hardware. The upper leaf shall be equipped with specially designed Truscon extra heavy steel hinges and guides.

(b) The structural steel contractor shall provide necessary holes for attaching door leaves and hardware in accordance with layout furnished by door manufacturer.

(6) **Operators**—Doors shall be equipped with a mechanical operating device as manufactured by the TRUSCON STEEL COMPANY, the design of which includes the counter-balancing of the operation at all points.

(7) **Painting**—All doors shall receive one coat of protective paint before shipment.

(8) **Erection**—Erection of doors and operators shall be performed by the door manufacturer.

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

VERTICAL LIFT-SWING DOORS

SERIES 1000S

VERTICAL Lift-Swing Doors, Series 1000T and 1000S, can be used in any type of structure by changing the arrangement of operators slightly. Because of their rugged construction these doors are particularly adaptable to extremely large door openings.

SPECIFICATIONS

Series 1000S—Structural Steel Construction

(1) **General**—All doors shown on the drawings as Vertical Lift-Swing Steel Doors shall be of structural type, Series 1000S, as manufactured by the TRUSCON STEEL COMPANY of Youngstown, Ohio. No substitution shall be made without the written consent and approval of the architect.

(2) **Material**—All doors shall be constructed from structural shapes, with additional horizontal and vertical reinforcing members of the same material where required for strength and rigidity.

(3) **Construction**—(a) The stiles, top rail, cross rails and bottom rail shall be constructed of hot-rolled channels of suitable size.

(b) All corners and intersections shall be coped, welded and ground smooth on exposed surfaces. All welds must develop the full strength of the section.

(c) The lower portion of the doors shall be fitted with 13-gauge steel panels fastened in place with machine screws.

(d) The upper portion of the door shall be fitted with windows built up of Truscon Standard members, not less than 1 7/8 in. in depth, with all joints air-hammer riveted and glazed with glass lights as shown on drawings. The glass shall be held in place with steel window putty and spring wire glazing clips. (Continuous steel glazing angles will be furnished if so specified.)

(e) Pilot doors, opening inward, shall be provided in the lower leaf where indicated, same shall be equipped with Truscon Standard Hardware, either a two-cylinder spring latch and dead bolt mortise cylinder lock or a lever latch with padlock brackets. All hardware shall be flush on the outside.

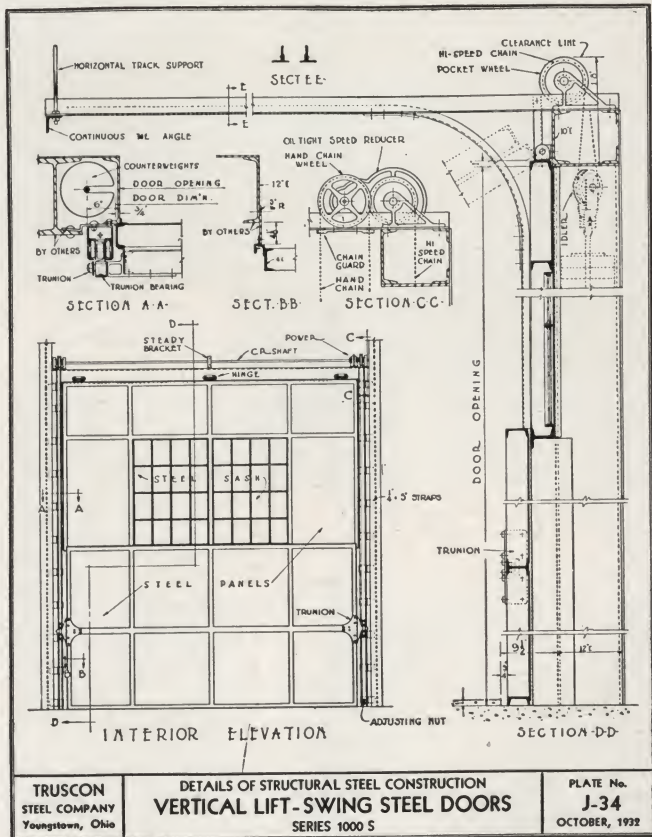
(4) **Frames**—(a) The door manufacturer shall include necessary door guides to carry the vertical travel of the door.

(b) The necessary structural steel frame to support the door and door operator, and to provide for the counterweights, shall be furnished and erected by the structural steel contractor.

(c) The two jamb weathering plates opposite the bottom leaf shall be furnished and installed by the structural steel contractor.

(5) **Hardware**—(a) The lower leaf shall be equipped with Truscon extra heavy specially designed hardware. The upper leaf shall be equipped with specially designed Truscon extra heavy steel hinges and guides.

(b) The structural steel contractor shall provide necessary



TRUSCON
STEEL COMPANY
Youngstown, Ohio

DETAILS OF STRUCTURAL STEEL CONSTRUCTION
VERTICAL LIFT-SWING STEEL DOORS
SERIES 1000 S

PLATE No.
J-34
OCTOBER, 1932

holes for attaching door leaves and hardware in accordance with layout furnished by door manufacturer.

(6) **Operators**—Doors shall be equipped with a mechanical operating device as manufactured by the TRUSCON STEEL COMPANY, the design of which includes the counter-balancing of the operation at all points.

(7) **Painting**—All doors shall receive one coat of protective paint before shipment.

(8) **Erection**—Erection of doors and operators shall be performed by the door manufacturer.



Erie R. R. Pier No. 21, North River, New York, N. Y.

GRAHAM KING, Architect

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

STEEL DOORS FOR EVERY PURPOSE



Airplane Hangar Doors
Curved Track Type



Vertical Lift-Swing Doors



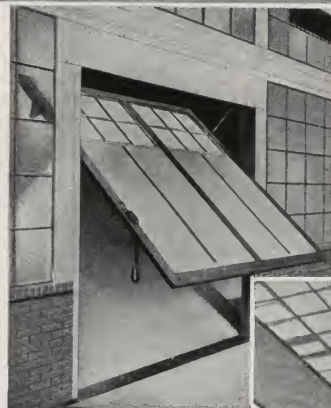
Accordion Doors



Airplane Hangar Doors
Original "Kanopy" Type



Airplane Hangar Doors
Straight Track Type



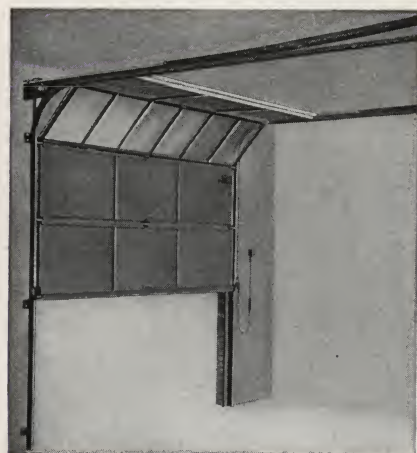
Canopy Doors



Telescopic Canopy Doors



Industrial Doors
Swing and Slide Types



Overdoors
Operating Overhead



Bifold Doors



Vertical Lift Doors

INSULMESH

Patent Applied For

A Plaster Base that Deadens Sound—Insulates and Reinforces

AN EXCLUSIVE plaster base, consisting of expanded metal which is firmly fastened to a specially treated, $\frac{3}{8}$ in. thick waterproofed backing that insulates against heat, cold and sound. Adhesive strips hold the mesh in place until the sheets are erected, then the nails or staples used to attach the Insulmesh to the studs or joists carry the load. Through the use of the strips, puncturing of the insulation is obviated.

New improvements have been made in the insulating backing. The material is heavier and a new waterproofing, developed especially for it by The Truscon Laboratories, improves the quality considerably. This backing consists of two flat sheets which form the chords of a truss, with a corrugated center section forming the web member, thus developing a remarkable strength. Dead air spaces, created by the corrugated center section, have a very high insulating value against heat, cold and sound.

Insulmesh combines in one product: remarkable sound-deadening qualities, the low first cost of wood lath, the crack prevention and firesafety of metal lath and the plaster economy and insulating ability of fibre and plaster boards.

SUPERIOR REINFORCEMENT

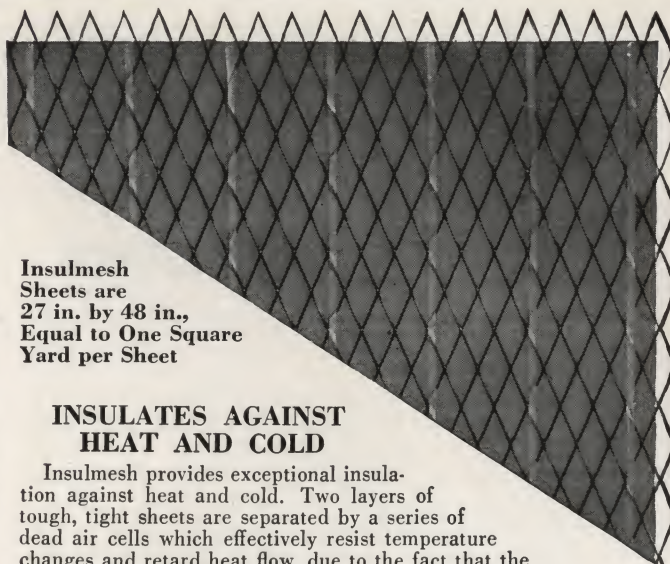
The mesh is made from 22-gauge steel, expanded into diamonds $1\frac{1}{2} \times 3$ in. This diamond-shaped mesh perfectly diffuses the stresses of concentrated loads, affords continuity of reinforcement and assures that every ounce of the metal is effective to resist tensile stresses. The expansion process causes it to become practically self-furring, so that when the plaster is applied, the steel becomes entirely embedded, affording a thorough reinforcing.

CONTINUOUS REINFORCEMENT

The diamond-shaped mesh extends beyond one side and end of the corrugated backing so that the metal laps at all joints, insuring uniform strength and preventing plaster cracks.

ECONOMICAL TO PLASTER

The rigidity of the sheet makes it easy to plaster over and level off. No plaster is wasted, for every particle goes on the surface. The mesh takes the plaster from the trowel and holds it in place. In effect, the entire job is "back-plastered."



Insulmesh
Sheets are
27 in. by 48 in.,
Equal to One Square
Yard per Sheet

INSULATES AGAINST HEAT AND COLD

Insulmesh provides exceptional insulation against heat and cold. Two layers of tough, tight sheets are separated by a series of dead air cells which effectively resist temperature changes and retard heat flow, due to the fact that the air in the wall does not have surface contact with the plaster. Insulmesh is the only plaster base which provides this air-cell insulation, in combination with steel reinforcing for the plaster.

SOUND-PROOFS

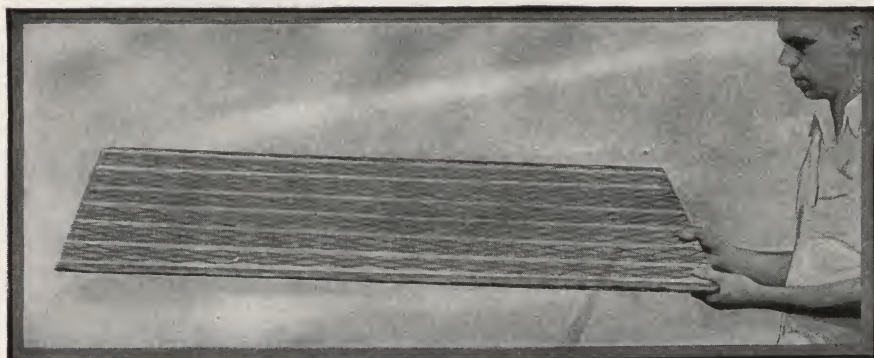
Insulmesh has remarkable sound-deadening qualities. The largest proportion of sound reduction is obtained through absorption by the dead air cells but, in addition, the rigid surface of Insulmesh reflects a certain amount. The fact that the absorbing surface is backed by the relatively dense, rigid plaster develops an ideal condition for retarding the passage of the sound waves.

SUITABLE FOR STUCCO

Insulmesh makes an excellent stucco base, for it performs the dual function of reinforcing the stucco with steel and serving as an insulating sheathing, or as an insulation over wood sheathing. The large-sized sheets are easy to erect and the overlapping joints give a continuous steel reinforcing.



Sturdy Cartons, Containing 40 Sheets,
Protect the Product and Facilitate
Handling and Storage

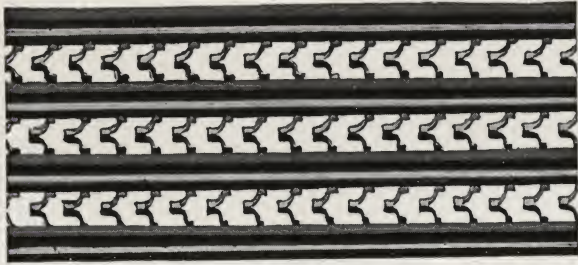


Rigid Sheets Speed Erection

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

METAL LATH PRODUCTS AND ACCESSORIES

For Crackproof, Firesafe
and Economical Plaster
Bases

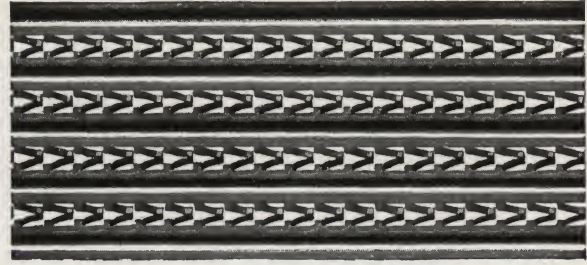


1-A METAL LATH

Sharply defined ribs $\frac{1}{2}$ in. wide, spaced $\frac{9}{16}$ in. apart, running full length of the sheet, provide a rigid plastering surface and resist the penetration and waste of excess plaster through the mesh. Two keys and four rudder-like projections per square inch provide a tenacious mechanical "key" for the plaster that is practically automatic with slight pressure. Truscon 1-A Lath can be used efficiently with either $\frac{1}{2}$ in. or $\frac{3}{4}$ in. grounds and plastered with the dry or wet process method the same as wood lath.

Weight per square yard		Maximum stud spacing, in.		Maximum joist spacing, in.	
3.0 lbs.		20		20	
Length sheet, in.	Width sheet, in.	Sq. yd. per sheet	Sheets per bdl.	Sq. yds. per bdl.	Weight per bdl.
96	24	1 7/9	9	16	48

Can be furnished in open hearth or copper-bearing steel—all painted.

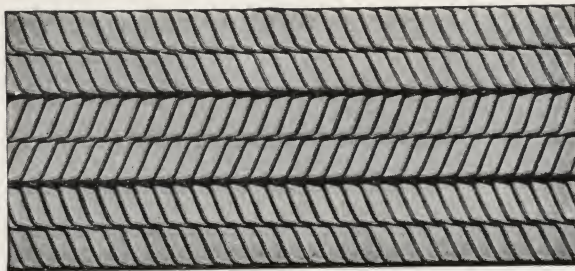


2-A METAL LATH

For those who prefer a sheet lath, and at the same time require the unique reinforcing and plastering qualities which are to be found only in Truscon's A-Laths, Truscon 2-A Metal Lath is the answer. Combining the smooth surface of sheet lath with the great rigidity and bond which are features of all Truscon A-Laths, Truscon 2-A Metal Lath is unequalled as a base for plaster. Its flat surface means speedy application of plaster and its closely spaced keys eliminate wastage.

Weight per square yard		Maximum stud spacing, in.		Maximum joist spacing, in.	
3.4 lbs.		24		24	
Length sheet, in.	Width sheet, in.	Sq. yd. per sheet	Sheets per bdl.	Sq. yds. per bdl.	Weight per bdl.
96	22 7/8	1 7/10	10	17	57.8

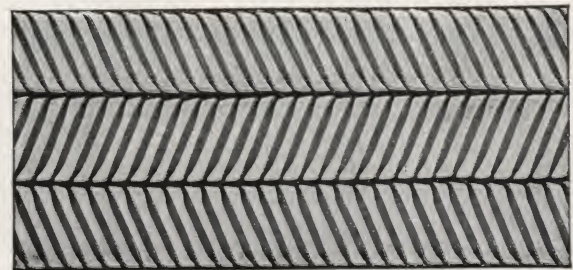
Can be furnished in open hearth or copper-bearing steel—all painted.



HERRINGBONE DOUBLEMESH

Doublemesh has the smallest mesh of any expanded lath and at the same time is rigid. The sheets require no stretching and do not sag between supports so that studs may be placed further apart without sacrifice to the strength of the walls. The lath is self furring.

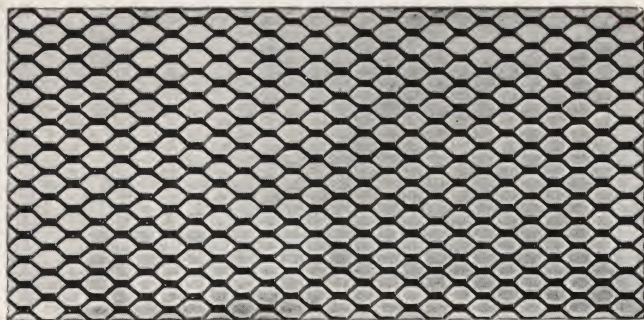
Weight per square yard				Sizes of sheets, in.	Sheets per bundle	Yards per bundle
Painted	Galvan- ized	Copper- bearing	Armco Iron			
2.75	24x96	9	16
3.4	...	3.0	3.0	24x96	9	16
3.0	3.4	3.4	3.4	24x96	9	16



HERRINGBONE RIGID

This lath has the same general advantages as "Double-mesh," the difference being in the size of the mesh. It has the same rigidity, the same interlocking edges and form the same remarkable key. Especially satisfactory for 2-in. solid partitions, suspended ceilings and stucco work.

Weight per square yard				Sizes of sheets in.	Sheets per bundle	Yards per bundle
Painted	Galvan- ized	Copper- bearing	Armco Iron			
2.2	...	2.2	2.2	20 1/4 x 96	15	22 1/2
2.5	...	2.5	2.5	20 1/4 x 96	15	22 1/2
3.0	...	3.0	3.0	20 1/4 x 96	15	22 1/2
3.4	3.4	3.4	3.4	20 1/4 x 96	15	22 1/2



DIAMOND LATH

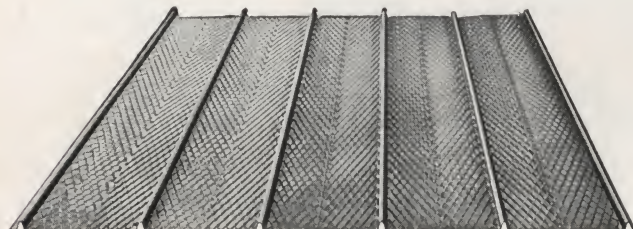
Truscon Diamond Laths are considered the most practical types of diamond lath on the market. Sheets are trimmed exactly 8 ft. 1 in. in length, with edges absolutely straight. The diamonds are small size, preventing workmen from wasting materials due to excessive pressure forcing plaster through on back side.

Truscon Diamond Laths are extremely rigid and the maximum size sheet permits low cost of erection. Easily cut, bent or formed in any shape to meet building requirements. Particularly recommended for fire-stops, cornices, false beam and column work, as well as solid partitions.

PROPERTIES, DIAMOND LATH AND SMALL MESH DIAMOND LATH

Weight yard	Length sheet, in.	Width sheet, in.	Sq. yds. sheet	Sheets bundle	Sq. yds. bundle	Weight bundle, lbs.
2.2	96	27	2	10	20	44
2.5	96	27	2	10	20	50
3.0	96	27	2	10	20	60
3.4	96	27	2	10	20	68
		Galvanized				
2.5	96	27	2	10	20	50
3.4	96	27	2	10	20	68

Can be furnished in either open hearth or copper-bearing steel. All material excepting galvanized is painted.



3/8" DIAMOND RIB LATH

A self-furring lath with 3/8 in. deep ribs, which permits wide spacing of supports. Used principally as a base for plaster on ceilings, straight-away partition work with channels and for exterior stucco. It is particularly recommended as a base for plaster under steel joists and as a reinforcement for concrete slabs over steel joists. 3/8 in. Diamond Lath is manufactured with the rib integral with the mesh. 3/8 in. deep ribs spaced 4 3/4 in. on centers run full length of the sheet with the distance between the ribs spanned by rows of small size diamonds.

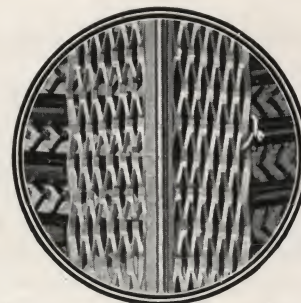
PROPERTIES, 3/8" DIAMOND RIB LATH

Weights per sq. yd.		Size of sheets, in.	Ribs spaced c-c, in.	Area of sheets per sq. yd.	Sheets per bundle	Yards per bundle
Painted	Copper bearing					
3.0	3.0	24x96	4.8	1-7/9	9	16
3.4	3.4	24x96	4.8	1-7/9	9	16
4.0	...	24x96	4.8	1-7/9	9	16

EXPANDED CORNER BEAD

Designed to protect outside corners of walls and both square and arched openings for doors and windows. The round nose takes the strains that cause cracking and chipping of plaster. Manufactured from galvanized steel, with a heavy shoulder to assure straightness and rigidity.

Lengths: 6, 7, 8, 10 and 12 ft.
Weight: 0.2 lbs. per linear ft.



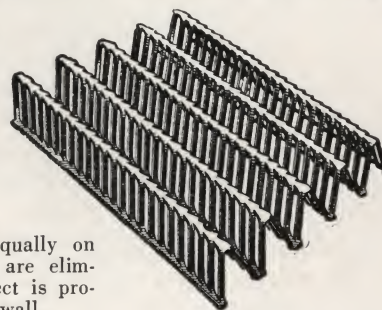
Expanded Corner Bead
with Metal Lath

TRUSSIT

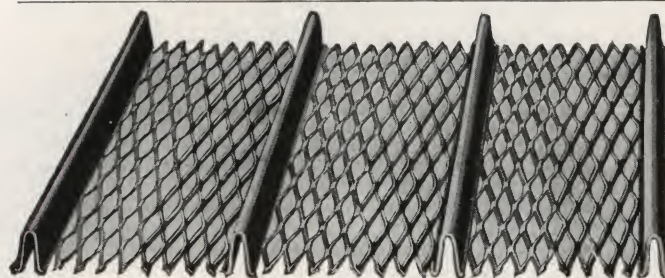
A specialized building product, designed for the purpose of reinforcing and forming fire-resistive concrete walls and partitions.

The use of Trussit as a reinforcement for solid exterior walls gives a construction in which the reinforcing is centrally located in the wall, producing a slab of uniform strength throughout.

Walls are quickly erected without forms, the cement plaster being applied to the Trussit equally on both sides. Form marks are eliminated and a pleasing effect is produced on each face of the wall.



	Length, ft.	Width, in.	Weight per sq. ft.
Painted.....	8, 10, 12	19	.57, .62 and .83 lbs.
Galvanized.....	8, 10, 12	19	.68, .88 lbs.
Armco.....	8, 10, 12	19	.57, .62 and .83 lbs.



SELF-SENTERING

Self-Sentering is a ribbed expansion metal for concrete reinforcing and miscellaneous firesafe construction. It serves as both form and reinforcement for concrete floor work and as a combined steel lath and studding for walls and partitions.

Weight	Slab thickness							
	2 in.		2 1/2 in.		3 in.		3 1/2 in.	
	ft.	in.	ft.	in.	ft.	in.	ft.	in.
.56 lbs.	3	3	3	0	2	9	2	6
.65 lbs.	3	6	3	3	3	0	2	9
.75 lbs.	4	0	3	8	3	4	3	0

WEIGHTS AND SECTIONAL AREAS

Painted steel weight, per sq. ft.	Effective sectional area, per ft. of width	Standard lengths, ft.
.56 lbs.	.167 sq. in.	8, 10 and 12
.65 lbs.	.193 sq. in.	8, 10 and 12
.75 lbs.	.223 sq. in.	8, 10 and 12

Galvanized, Copper-bearing, or Armco Self-Sentering on mill shipment, minimum of five tons one weight and length.

OTHER LATHS AND LATH ACCESSORIES

Plate Lath, Stucco Steel, Expanded Metal, Hy-Rib. Wide Flanged Corner Beads, Wing Corner Beads, Cornerites, Round and Square Channels.

“O-T” OPEN TRUSS STEEL JOISTS

*For Economical
and Fireproof Floors*

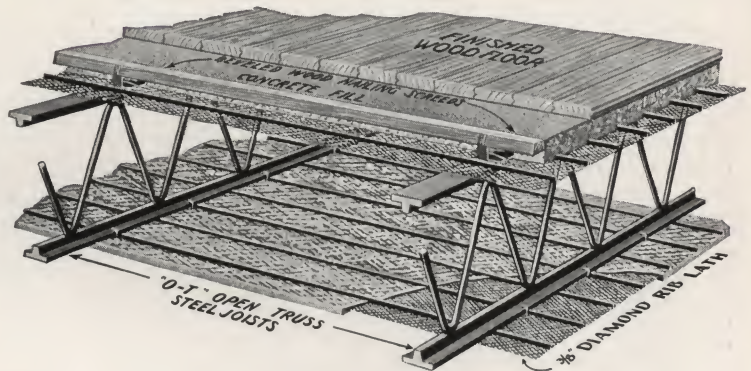
TO meet the demand for economical, light weight and fireproof floors, Truscon has developed the “O-T” Open Truss Steel Joist which is designed according to the best engineering practice and offers many advantageous and distinctive features. In effect, the entire design is unusually efficient as well as exceptionally economical of materials.

Fundamentally, the Truscon “O-T” Open Truss Steel Joist is a Warren truss having top and bottom chords of wide tee-shaped members to provide the greatest resistance to buckling strains. The bottom tee is continuous to the bearings, where it is welded with the web plate and top chord to form a solid I-beam. Web members are continuous from end to end so that stresses are transmitted perfectly. High pressure electric welding is used to make positive connections at all joints.

The underslung design of the bearing permits maximum headroom under the supporting girders. The open web allows the passage of pipes and conduits of any number and in any direction.

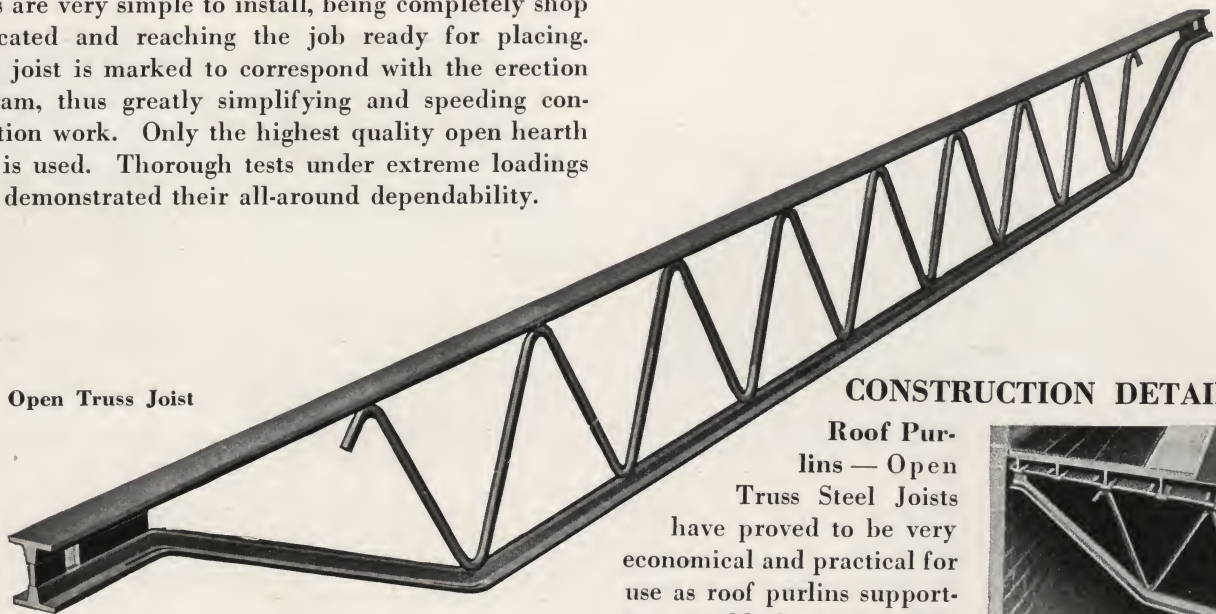
In practical use Truscon “O-T” Open Truss Steel Joists are very simple to install, being completely shop fabricated and reaching the job ready for placing. Each joist is marked to correspond with the erection diagram, thus greatly simplifying and speeding construction work. Only the highest quality open hearth steel is used. Thorough tests under extreme loadings have demonstrated their all-around dependability.

Designed and manufactured in accordance with the specifications of the Steel Joist Institute and the Simplified Practice Recommendations (S.P.R. 9430) on Open Web Steel Joists as issued by the U. S. Department of Commerce, Bureau of Standards.



Truscon Open Truss Steel Joist Construction with Finished Floor of Wood Secured by Means of Screeds placed at Right Angles to the Joists and Elevated to Provide for Concrete Underneath

Open Truss Joist

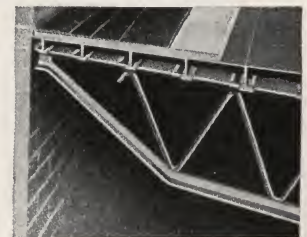


ADAPTABILITY

Truscon “O-T” Open Truss Steel Joists are adaptable to all types of buildings, regardless of their location, and in small buildings at practically the same cost per square foot as in skyscrapers. Fireproof construction is thus made available in many buildings where other systems of fireproof construction would not be practical.

CONSTRUCTION DETAILS

Roof Purlins — Open Truss Steel Joists have proved to be very economical and practical for use as roof purlins supporting steeldeck roofs. The method of attaching the roof to the steel joists is very simple and positive, as shown in illustration.



Roof Purlins

Nailing Screed—Occasionally, it is desired to attach a wood roof deck to Truscon “O-T” Open Truss Steel Joists used as roof purlins. Nailing screeds are required in this construction and they may be attached either directly over the joists or at right angles to them.

"O-T" OPEN TRUSS NAILER JOISTS

For Light Occupancy
Buildings

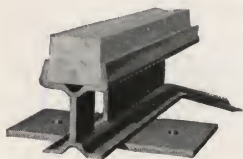
TO make available for homes, apartments, stores and other light occupancy buildings the advantage of permanent construction at a cost comparable to wood has been the basic idea in the development of Nailer Joists.

In them are incorporated the basic features of Truscon "O-T" Open Truss Steel Joists, so extensively used in important buildings throughout the country. Unusual strength and rigidity result from their superior design and construction. Easy installation follows a complete and accurate fabrication in the Truscon plant.

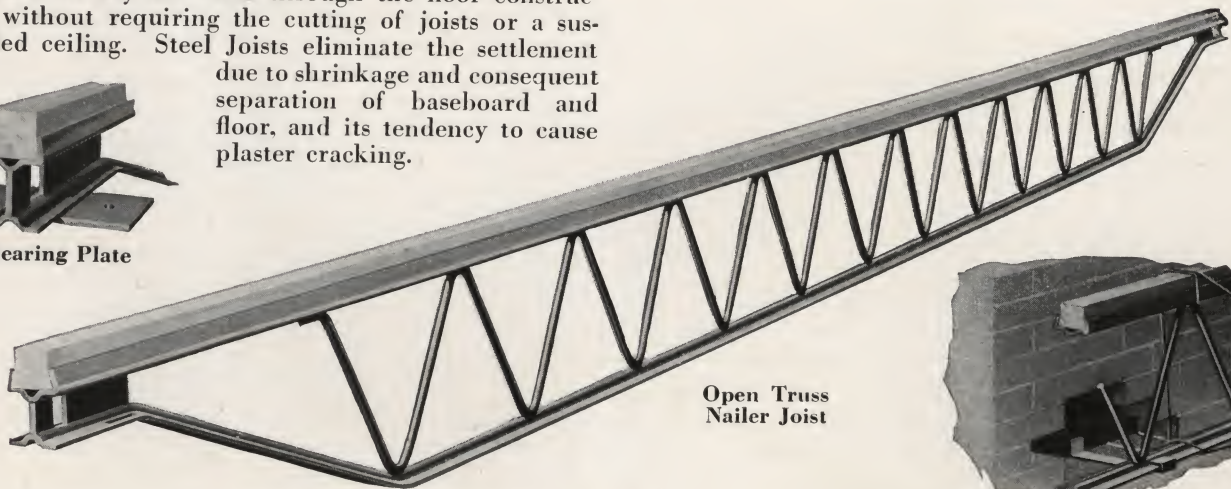
Wide, specially-formed members for top and bottom chords impart stiffness to the Nailer Joists and keep them true to line. The continuous steel web member is securely welded to the chords by the high pressure electric welding process.

The end construction—a vital point in steel joist design—is unusually strong and rigid. Bearings for the joists are wide and ample. The underslung design at the supports not only insures stability of the joists during installation but provides additional head room under the supporting girders.

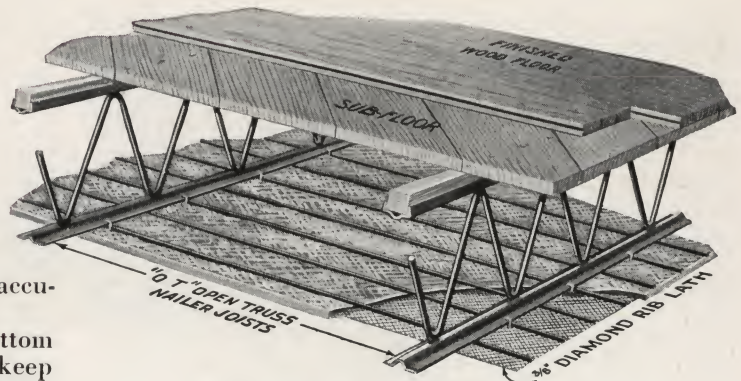
Their open web permits the passage of pipes and conduits in any direction through the floor construction without requiring the cutting of joists or a suspended ceiling. Steel Joists eliminate the settlement due to shrinkage and consequent separation of baseboard and floor, and its tendency to cause plaster cracking.



Bearing Plate

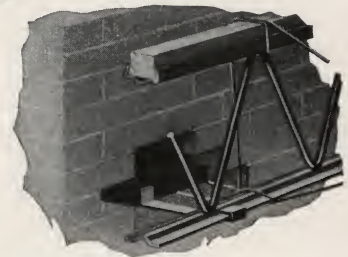


Open Truss
Nailer Joist



Nailer Joist Construction Details—
Bridging

No. 14 gauge wire is wrapped around each chord and crossed diagonally between joists, being twisted for tension. Wall anchors, if specified, can be used to connect the joists to masonry, thus making a rigid anchorage for the bridging. The rough floor, when nailed to the joists, positively spaces the joists and serves as a continuous lateral strut.



Wall Anchor No. 2

ADVANTAGES

Truscon Nailer Joists reach the job ready for placing without cutting or fitting. The wood flooring is nailed directly to the wood nailing strips which are securely attached to the top chords of the joists.

The light weight of nailer joist construction lessens the time and labor required for erection and also saves materials in the supporting framework and foundations. Every detail of joists and attachments has been perfected by practical experience to simplify installation and assure dependable results.

With a metal lath plastered ceiling attached to the lower chord of the joists, the construction provides fire-safety to a substantial degree, preventing the spread of fire from below. Several floors can be installed at one time.

With Truscon Nailer Joists available it is no longer necessary from either a practical or economical standpoint to use wood joist construction in any building.

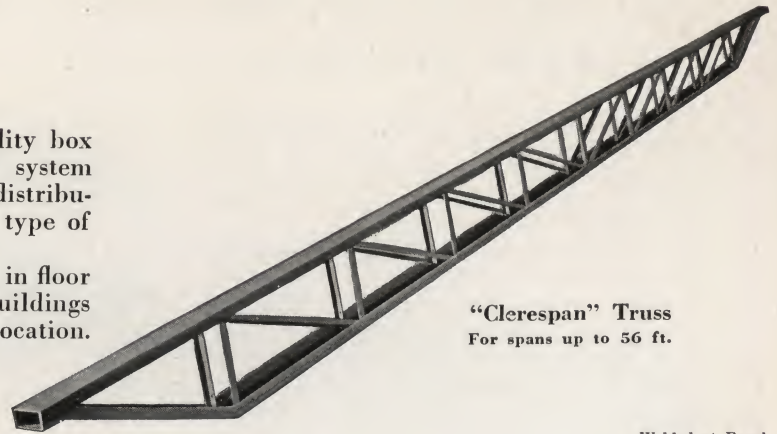


Bottom Chord Extension

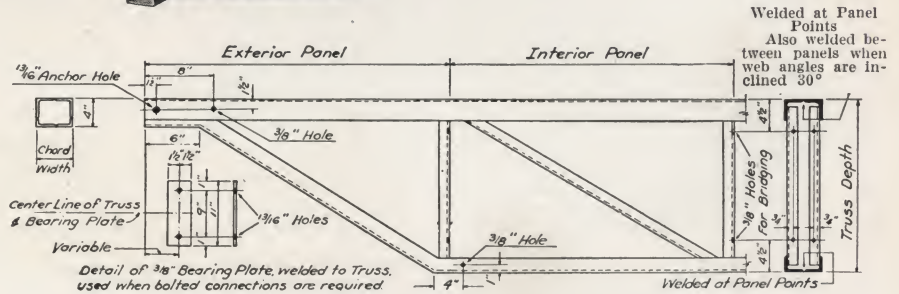
“CLERESPAN” TRUSSES

TRUSCON “Clerespan” Trusses are in reality box type lattice girders having a double web system thus having the most economical and efficient distribution of metal and resulting in the most rigid type of structural unit.

Truscon “Clerespan” Trusses when employed in floor construction can be used advantageously in buildings of all types of occupancies regardless of their location. In many types of buildings their use will automatically eliminate all columns from the structure with the exception of those in the outer walls. Greater floor areas are thus provided without obstructing columns than has ever heretofore been accomplished. When used in roof construction, “Clerespan” Trusses meet every requirement of every type of building.



“Clerespan” Truss
For spans up to 56 ft.



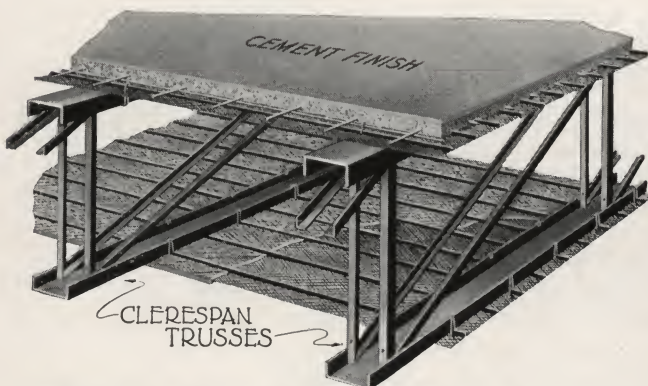
ADVANTAGES

- Can be used in: floor and roof spans up to 56 feet.
- Provide greater areas of unobstructed floor space.
- Floor areas unobstructed by columns give greater flexibility in arrangement of interior equipment.
- Securely bridged by means of “Strut” or cross bridging, securely bolted in place.
- A fireproof type of construction quickly obtained.
- Possessing unusual lateral stiffness.
- Designed as a Pratt Type Truss.
- All compression stresses reduced to provide for local as well as direct bending.
- Automatic electric resistance pressure welding employed in all joints.
- Made entirely of hot rolled structural angles.
- A box type lattice girder having a double web system.
- Permits of the passage of pipes and conduits.
- Being underslung in design, they are easily erected.

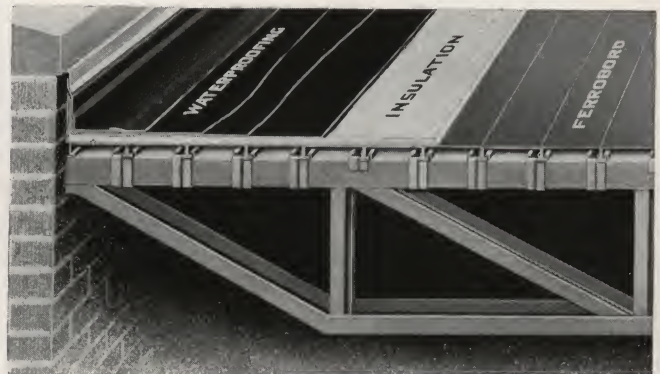
DIMENSIONS AND PROPERTIES

Truss Depth in.	Truss Type	Chord Width	Top Chord Angles	Bottom Chord Angles	Web Angles		Panel Lengths	
					Vertical	Diagonal	Exterior	Interior
20	20A	4	2 x2 x1/4	2 x2 x3/16	1 1/4 x1 1/4 x3/16	1 1/4 x1 1/4 x3/16	2'-11 3/4"	2'-9"
	20B	5	2 1/2 x2 1/2 x1/4	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/4 x1 1/4 x3/16	"	"
	20C	6	3 x3 x1/4	3 x2 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	20D	6	3 x2 1/2 x3/16	3 x3 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	20E	5	3 1/2 x2 1/2 x3/16	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	20F	6	4 x3 x3/16	4 x3 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	1'-9"
	20G	7	4 x3 1/2 x3/16	3 1/2 x2 1/2 x3/16	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"
	20H	8	4 x4 x3/16	4 x4 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"
24	24A	4	2 x2 x1/4	2 x2 x3/16	1 1/4 x1 1/4 x3/16	1 1/4 x1 1/4 x3/16	3'-6 3/8"	3'-3"
	24B	5	2 1/2 x2 1/2 x1/4	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/4 x1 1/4 x3/16	"	"
	24C	6	3 x3 x1/4	3 x2 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	24D	6	3 x2 1/2 x3/16	3 x3 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	24E	5	3 1/2 x2 1/2 x3/16	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	24F	6	4 x3 x3/16	4 x3 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	2'-1"
	24G	7	4 x3 1/2 x3/16	3 1/2 x3 1/2 x3/16	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"
	24H	8	4 x4 x3/16	4 x4 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"
28	28B	5	2 1/2 x2 1/2 x1/4	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/4 x1 1/4 x3/16	4'-1 1/2"	3'-9"
	28C	6	3 x3 x1/4	3 x2 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	28D	6	3 x2 1/2 x3/16	3 x3 x1/4	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	28E	5	3 1/2 x2 1/2 x3/16	2 1/2 x2 1/2 x3/16	1 1/4 x1 1/4 x3/16	1 1/2 x1 1/2 x3/16	"	"
	28F	6	4 x3 x3/16	4 x3 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	2'-5"
	28G	7	4 x3 1/2 x3/16	3 1/2 x2 1/2 x3/16	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"
	28H	8	4 x4 x3/16	4 x4 x1/4	1 1/2 x1 1/2 x3/16	1 1/2 x1 1/2 x3/16	"	"

“Clerespan” Trusses are generally manufactured with diagonal web members inclined approximately 30° although some incline approximately 45°.



“Clerespan” Trusses with Finished Floor of Cement
3/8 In. Diamond Rib Lath for Floor and Ceiling



“Clerespan” Trusses with Ferrobord Steeldeck Roof

FLORETYPE CONSTRUCTION

LOCKTYPE

LOCKTYPE is an improved Floretyle Construction consisting of deep ribbed steel Floretyle whose flanges are locked into the prongs of the ribs of Locktype Lath.

Locktype Lath is furnished in rolls 100 ft. long x 2 ft. wide, the ribs running in the direction of the 2 ft. width. It consists of ribs $\frac{3}{8}$ in. high spaced 4.8 in. center to center with a diamond mesh between the ribs. At the proper distance from the ends, each rib has a prong punched upward (see illustration). Locktype Lath is shipped in rolls with the ribs turned inward. After it rolls out on the form, the ribs and prongs are on the upper side for immediate placing of the ribbed Floretyle.

Locktype Construction is easily and speedily erected. It saves in concrete and plastering cost and insures true and straight concrete joists with positive attachment of the ceiling in reinforced concrete construction. It

insures constant width of concrete joists, making unnecessary the use of any spacers, and saves all expensive nailing of the steel Floretyle to the form boards.

As used with Locktype Lath, all heights of ribbed Floretyle are 20 in. wide at the base, exclusive of the flanges along the bottom edges.



FERROCLAD STRUCTURAL PANELS

STEEL or non-ferrous metal faced one or both sides with insulated, acoustic, fire-resisting or rigid type cores, manufactured in panel sizes up to 4 ft. x 12 ft. and in any thickness from $\frac{1}{8}$ in. upwards. Metal faced and core material cemented together under hydraulic pressure with a non-corrosive, waterproof cement capable of withstanding temperature between minus 110 degrees to 850 degrees, without giving off odors or having any deterioration.

PANEL TYPES

Ferroclad Insulated Structural Panels—Internal conductance .33 B.t.u. per square foot per hour per degree of temperature difference. Can be used between temperatures of 0 degrees to 250 degrees Fahrenheit.

Ferroclad Acousti-Panels—Internal conductance .33 B.t.u. per square foot per hour per degree of temperature difference. Sound absorption co-efficient .30, .47 or .70.

Ferroclad Rigid Structural Panels—Small insulation and acoustic value. Structural value to meet conditions.

Ferroclad Low Temperature Panels—Internal conductance from .20 to .30 B.t.u. per square foot per hour per degree of temperature difference. Moisture resisting. Light in weight. Structurally very good. Can be used up to 1600 degrees Fahrenheit.

Ferroclad Fireproof Panels—Internal conductance .50 B.t.u. per square foot per hour per degree of temperature difference. Solid structural panel. Moisture proof.

Metal faces can be furnished plain, prepared for lacquers or enamels, or finished with any type of wood veneer.

Edge and joint construction can be fabricated into panels to meet particular conditions.

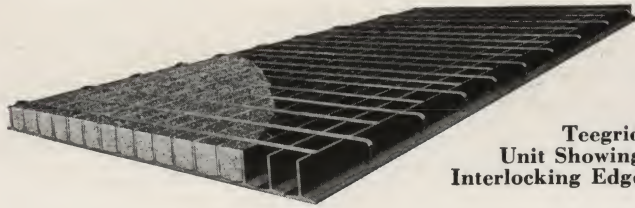
All panels can be waterproofed without affecting insulation, acoustic and fireproofing qualities.

Recommended for:

Dryers and Kilns, Low and High Temperature
Rigid Radiator Enclosures and Conduits
Insulation Backs for Radiators
Insulated Ceilings, Wall or Roof Construction
Air Duct Construction
Refrigerators and Cold Storage Plants
Blower and Fan Panel Construction
Panels for Oven Construction
Panels for Residential Furnace and Boiler Construction
Panels for Air Cleaning, Cooling and Humidifying Equipment



FLOOR SYSTEMS



Teegrid
Unit Showing
Interlocking Edge

TEEGRID

(Patent Applied For)

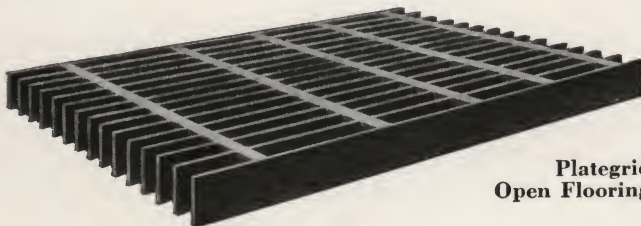
THIS floor system consists of load-bearing T-sections and load distributing bars at right angles to each other, with the intervening spaces filled with concrete vibrated into place.

The fabrication of Teegrid involves the welding of T-sections, flange to flange, with the stems extending upward.

Triangular Traffic bars are then pressure welded to the vertical stems, at 4-in. centers, with the flat side of the bar level with the top edge of the "T" stems, to form a rigid, solid slab unit.

Advantages—An engineering design capable of carrying all types of specified bridge loading. Maximum carrying capacity with minimum dead weight. Light weight effects considerable saving in bridge structure. Absolute continuity of material and load distribution throughout entire structure. Elimination of field forms for concrete wearing surface. The erection of Teegrid units provides an immediate safe working floor. Erected by the same labor which erects the balance of bridge steel. Concrete can be poured and vibrated in place as soon as Teegrid is erected. A wearing surface armored with steel, offering great resistance to traffic abrasion.

Used for bridge and heavy duty floors of all kinds.



Plategrid
Open Flooring

PLATEGRID

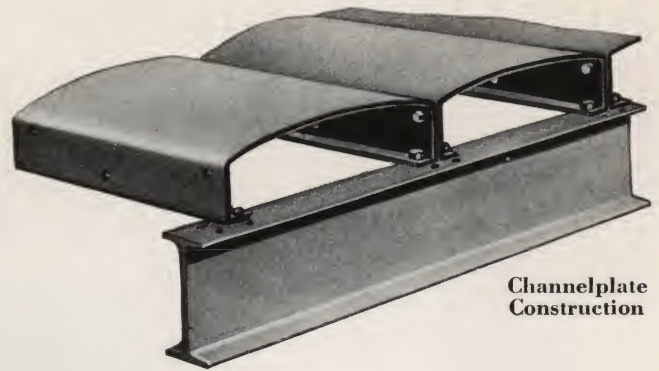
(Patent Applied For)

An all-steel grating developed for use as open type flooring, to permit the passage of light and air to spaces above or below the floor. Its construction is simplified—permanence, safety, strength, cleanliness, efficiency and economy are features. Being electro-forged into a unit, Plategrid offers obvious advantages over ordinary types of gratings.

Plategrid consists of a series of bars of variable depth and thickness placed parallel and on edge at definite intervals. Along the top of the parallel bars, and at right angles to them special cold-drawn triangular bars are electro-forged into the parallel bars, so that the surfaces are level with each other. When the main bars are two inches or greater in depth, supplemental cross bars are electro-forged into the bottom in the same manner as at the top, but at greater spacings.

Manufactured in four standard types in depths of $\frac{3}{4}$ to 2 $\frac{1}{4}$ in. and lengths of 2 ft. to 16 ft.

Plategrid open type steel flooring is used for area gratings, manhole coverings, cooling floors, walk-ways and platforms for boiler rooms, power houses, pumping stations, water works, filtration and sewage disposal plants, oil refineries, gas plants, foundries, stair treads, sidewalk grating for subways and many other uses.



Channelplate
Construction

CHANNELPLATE

(Patent Applied For)

DESIGNED for medium and heavy loading, offering important economies, especially where the total floor load exceeds 150 lbs. per sq. ft.

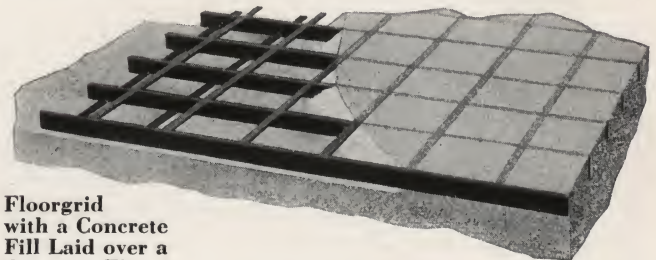
This structural steel floor consists of a series of Channelplate sections bolted web to web and with the flanges bolted, riveted or welded at the ends of the Channelplate to the structural supporting frame.

The Channelplates are pressed from open hearth steel plates of varying thicknesses. When the web of the Channelplate is bolted to the web of the adjacent section, the double web and flanges form an I-beam section that occurs at intervals of 20, 22 or 24 in.

The top flange between I-beams is arched with a standard crown height of $\frac{3}{4}$ in., thereby providing unusual stiffness and a high resistance to impact or moving loads. A wearing surface of concrete reinforced with welded steel fabric, asphalt mastic, or other materials as desired, is applied directly to the Channelplate construction.

Advantages—Channelplate floors are from 25 to 60 lbs. per sq. ft. lighter than the ordinary types of floors used for medium or heavy duty loadings. The result is a worthwhile saving in the structural steel frame required for its support and in the total weight of the structure.

Channelplates are self-supporting—there is no need of centering or other temporary supports. As soon as supporting frame has reached floor level, the Channelplates can be laid. They are erected by the same labor, and at the same time, as the structural steel and can be laid temporarily, if desired, and used as working or storage platforms.



Floorgrid
with a Concrete
Fill Laid over a
Concrete Floor

FLOORGRID

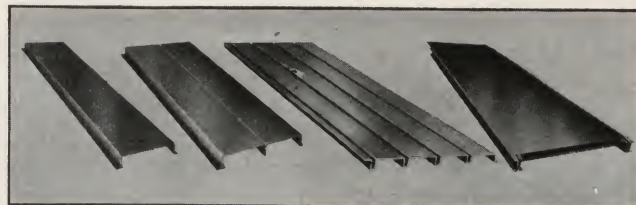
(Patent Applied For)

This product has been developed for use where abrasion and wear are severe and where continuous service from floors is necessary. It consists of rectangular straight bars spaced at definite intervals, with triangular cross bars electro-forged into them to form a steel armored wearing surface that is unequalled for heavy duty. Floorgrid is designed to function purely as a wearing surface, although it does impart considerable strength to the construction. The steel armoring protects against the wear of rolling or dragging loads, as well as against the destructive action of loading or unloading heavy articles, for the unit construction of Floorgrid positively transmits the force of the blow over a large area.

Three standard types furnished in lengths of 8 ft., $\frac{3}{4}$, 1, 1 $\frac{1}{2}$ or 2 in. deep in widths slightly over 3 ft. 4 in.

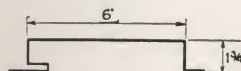
STEELDECK ROOFS

STEELDECK Roofs, insulated to any degree and waterproofed, are of a broad and general usefulness. They are particularly adaptable to theatres, gymnasiums, schools, auditoriums, public halls and industrial buildings requiring large floor areas free from supports and obstructions. Steeldecks are plates of copper-bearing steel of standardized lengths and widths, with ribs formed longitudinally in the plates. The ribs are on the underside of the plates and the top is a smooth level surface to receive insulation and waterproofing. They can be used to advantage on straightway, flat, pitched and curved roofs with a minimum radius of 40 ft.



Ferrobord 6 in. wide Ferrobord 8 in. wide Ferroplate Ferrodeck

FERROBORD

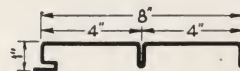


This roofdeck, 6 or 8 in. wide, is so formed that each sheet firmly interlocks with the adjoining sheet to form a continuous deck over the entire roof.

Ferrobord 6 in. wide is used for spans between 6 and 10 ft. Made in 20 and 18 gauge with ribs either 1 1/4 or 1 3/4 in. deep depending upon the load.

Any length may be supplied and butt joints may occur between supports by using butt clips.

Ferrobord 8 in. wide is used when spans are between 2 ft. and 5 ft. 6 in. Made in 24 and 22 gauge with ribs 1 in. deep. Standard length 12 ft. Laps must occur over supports.



Welding Ferrobord—This deck is especially adaptable for the arc welding process of erection because the flat, bottom flange of the rib presents an extremely easy and simple welding condition. The operation is done from above, with each weld readily accessible.

FERROBORD SECTIONS FOR DIFFERENT SPANS AND ROOF LOADINGS

Type of Ferrobord	Span in feet	Total dead load and live load per square foot											
		25 lbs.		30 lbs.		35 lbs.		40 lbs.		45 lbs.		50 lbs.	
		Gauge	Depth	Gauge	Depth	Gauge	Depth	Gauge	Depth	Gauge	Depth	Gauge	Depth
6" wide	6' 0"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"
6" wide	6' 6"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"
6" wide	7' 0"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"
6" wide	7' 6"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"
6" wide	8' 0"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	18	1 1/4"
6" wide	8' 6"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	20	1 1/4"	18	1 1/4"
6" wide	9' 0"	20	1 1/4"	20	1 1/4"	20	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"
6" wide	9' 6"	20	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"
6" wide	10' 0"	18	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"	18	1 1/4"

The above table has been computed on the following assumptions:

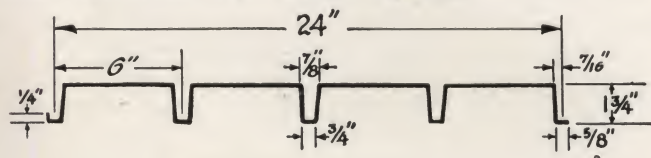
Maximum unit fiber stress 18,000 pounds per sq. inch.

Maximum allowable deflection is one two-hundred and fiftieth ($\frac{1}{250}$) of the span in inches based on either a uniform or an equal concentrated load.

Dead load of Truscon Ferrocoastic with insulation, built-up roofing and acoustical panels approximately five (5) to nine (9) pounds per sq. foot, according to the type of material used.

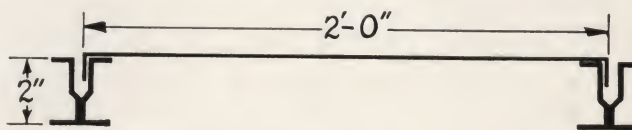
FERROPLATE

18, 20, 22 or 24 gauge copper-bearing sheets or galvanized sheets (before fabrication) 24 in. wide; ribs 1 3/4 in. deep; maximum length, under 12 ft. Welded to purlins.



FERRODECK

An assembly of sub-purlins and reinforced roof sheets. Sub-purlins, 2 in. deep, 18 gauge. Roof sheets, 2x4 ft., 18 or 20 gauge; substantially reinforced with angles every 16 in. on center.



FERROCOUSTIC

Ferrocoastic Roofdecks provide all the advantages of Steeldeck with the additional feature of acoustical correction for auditoriums, large rooms, gymnasiums and similar places.

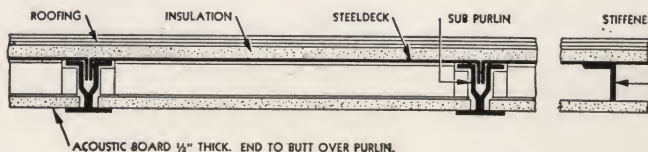
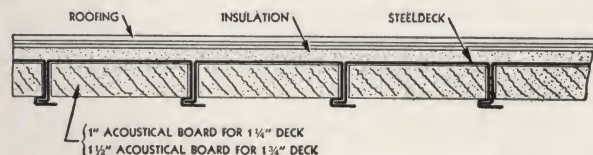
FERROBORD, 6 in. wide, with acoustical treatment, consists of panels of any commercial acoustical board fitted between the ribs of these roofdecks. The flanges of the ribs form a positive mechanical support. These ribs are either 1 1/4 or 1 3/4 in. deep, allowing either 1 or 1 1/2 in. of acoustical treatment to be used. Sheets with acoustical board inserted are welded to purlins, eliminating metal clips and adding strength to the construction.

The Ferrobord construction with the Ferrocoastic treatment also makes an excellent, light-weight, quiet floor construction of

minimum thickness when surfaced with cement, magnesite, rubber tile, linoleum or other materials, for its structural design enables it to carry unusually heavy loads.

FERRODECK with acoustic board applied makes also an excellent installation. The sub-purlins are secured to the supporting roof framing with clips or by the welding process.

The acoustic board, which is 1/2 in. thick, is laid on the bottom flanges of the sub-purlins, then the fabricated roof sheets are placed so that the flanged-over edges of adjacent sheets fit side by side into the openings along the tops of the sub-purlins. The acoustical board automatically is held firmly in place by the stiffening angles in the roof sheets.



STANDARDIZED STEEL BUILDINGS AND STRUCTURAL STEEL

THESE buildings involve only the use of Truscon products. Their variety of types and sizes, and the option of steel walls, Ferroclad Walls, or walls in combination with brick, concrete or stucco, allow a wide latitude in the selection of the individual structure.

Structural Steel for Framing—Conforms to accepted practice and is designed to support standard loads.

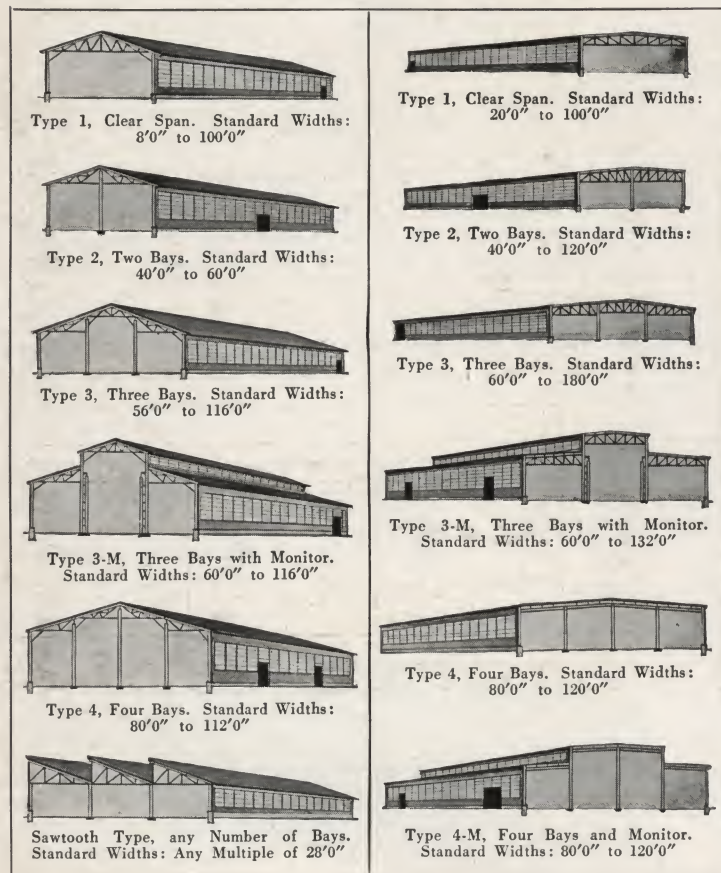
Steel Windows—Standard Steel Windows and Operators for steel windows are used throughout.

Steel Doors—Standard swing or slide types for openings up to approximately 9 ft. square; other Truscon doors for larger openings.

Roofdeck—Truscon Ferrodeck, insulated to any degree and waterproofed with standard roofing.

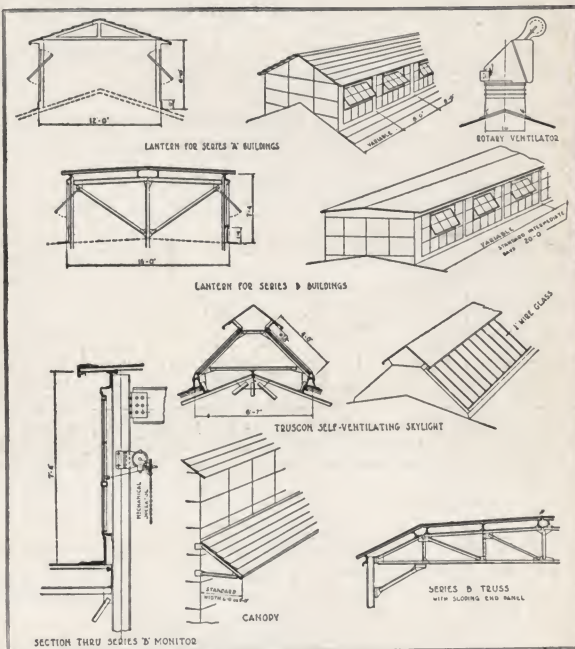
Series "A" Buildings—Pitched Roof Types: Lengths—multiples of 2 ft.; heights—8 ft. 1 in. or greater, varying in multiples of 2 ft. 8 in.; standard curb heights—8 in., 16 in. and 24 in.; standard lantern—12 ft. wide, 6 ft. 10 in. high.

Series "B" Buildings—Flat Roof Types: Lengths—multiples of 2 ft.; heights—11 ft. 5 in. to 32 ft. 9 in. or greater, varying in multiples of 2 ft. 8 in.; standard curb heights—8 in., 16 in. and 24 in.; standard lantern—16 ft. wide, 8 ft. high.



Series "A"—Pitched Roofs

Series "B"—Flat Roofs



Details of Standardized Accessories

[Truscon Engineers welcome the opportunity to collaborate with architects and engineers in developing the most efficient use of structural steel and complete steel buildings.]

BUILDINGS WITH FERROCLAD WALL PANELS

FERROCLAD Wall Panels are made of a fibrous insulated board, 1 in. thick, the outer face being covered with a 20 ga. sheet of copper-bearing steel, the inner face with a 24 ga. sheet of copper-bearing steel. Each sheet is securely bonded to the insulating board. Ferroclad Walls have great structural strength and offer a resistance to temperature change equal to that of a 12-in. masonry wall.

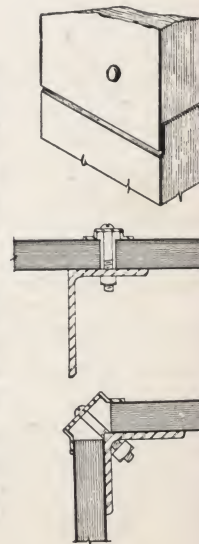
The nominal size of the standard wall panel is 4-ft. wide and 2-ft. 8-in. high. When necessary to obtain variation in the length of the building or location of doors, panels 2-ft. wide may be used.

Edges of panels are sealed to protect the insulation from moisture. Steel sheets are galvanized or shop painted with standard gray Bar-Ox paint.

Horizontal Joint—A system of positive weathering and alignment has been developed to take care of the joint as one panel is placed above another. Galvanized rivets are used to prevent accidental spreading of insulation. Rivets are kept back far enough from the vertical edges of the panels to clear studs and cover plates.

Vertical Joint—The vertical joint is made by clamping the edges of adjoining panels between the structural steel stud and a cover plate. Note that the cover plate bears on the panels with a flat surface for weathering.

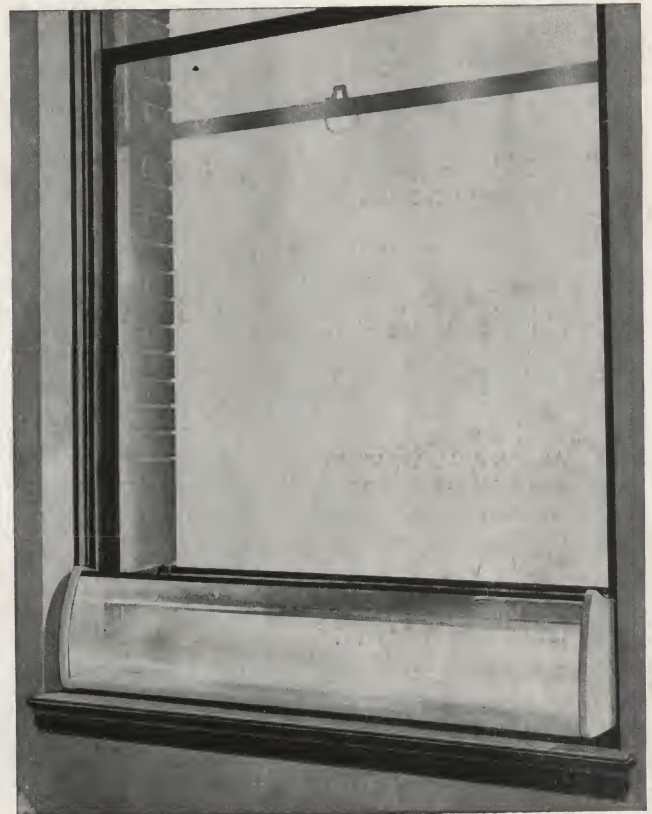
Building Corner—A special corner cover plate is used to clamp the panels to the corner stud. Note that the building dimensions in multiples of 2-ft. are taken at the outside line of the studs.



SILENTAIRE

Reg. U. S. Pat. Off.

A Non-Mechanical Window Muffler

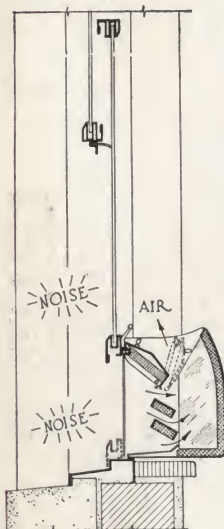


For All Types and Sizes of Double-Hung Windows

KEEPS outside noises out—combines the quiet and cleanliness of a closed room with greatly improved air circulation.

Silentaire offers a scientific and perfected solution of the noise exclusion problem. It permits the lower sash of any double-hung window to be raised ten inches and at the same time it keeps out the annoying street noises. Not only does it provide the peaceful quietness of closed quarters and the ventilation that open windows supply, but the air current is introduced with a fast upward motion that diffuses it equally throughout the room. No draft is perceptible to the occupants. The force and amount of air is readily controlled. There is no motor, blower or mechanical apparatus whatever—no expense for maintenance or operation.

Silentaire not only excludes sound but is proof against rain and snow. Weather strip along the bottom makes the window substantially weathertight. With each installation, a seal is fastened to the lower rail of the upper sash, closing the space between the sliding sections when windows are open and thus preventing sound leakage at that point. Silentaire is a great aid to room cleanliness. It traps and holds dirt.

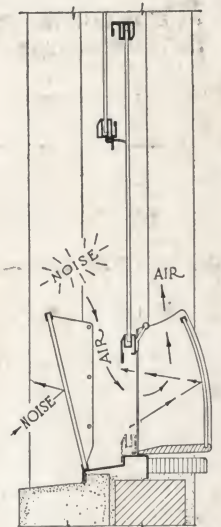


Series 50-M

All metal, self-contained frame. Interior construction designed for maximum sound absorption with improved ventilation control. Complete unit mounted on inside of window and can be instantly removed and replaced.

Built-In Silentaires and Noise-Excluding Windows

In addition to the removable units described above, Truscon manufactures built-in Silentaires for use with standard windows of all types, and complete Silentaire Windows of various types in which the noise muffler is incorporated as part of the window, itself.



Series 60-G

Uses principle of sound-reflection, permitting clear vision. Outside reflector is heavy polished wired plate glass in safety frame. Inside reflector is heavy curved glass scientifically focused to exclude sound waves. Quickly detached and replaced.

TRUSCON STEEL COMPANY—YOUNGSTOWN—OHIO—U.S.A.

TRUSCON

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